Third Annual Report to Congress

Monitoring Utilization of and Access to Services for Medicare Beneficiaries Under Physician Payment Reform

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Secretary of Health and Human Services
1993

Acknowledgments

This report was prepared in the Office of Research and Demonstrations (ORD), Health Care Financing Administration. Marian Gornick and William Sobaski were responsible for the overall design and technical oversight of the report. Anne Trontell, M.D., was also responsible for technical oversight. Data analyses and chapters were prepared by William Sobaski and Ann Meadow (Chapter 2); Paul Eggers, Ph.D (Chapter 3); Marian Gornick and Marshall McBean, M.D. (Chapter 4); Lawrence Kucken (Chapter 5 data file by Julie Schoenman, Ph.D., and Keith Umbel from Project Hope); Margo Rosenbach, Ph.D., and Joyce Huber, Ph.D., from the Center for Health Economics Research, under grant # 90037/1 (Chapter 6); Renee Mentnech (Chapter 7); and Joan Warren, Ph.D. (Chapter 8). Several individuals provided review and comments including Alma McMillan, James Lubitz, Sherry Terrell, Ph.D., and Harry Savitt, Ph.D. The report was prepared under the direction of George Schieber, Ph.D., Director, Office of Research and Joseph R. Antos, Ph.D., Director, Office of Research and Demonstrations. The Bureau of Data Management and Strategy provided computer systems analysis and programming support, including Marilyn Newton, Ronald Prihoda, Mae Robinson, and Lynne Rabey, under the direction of Robert Moore, Director, Office of Statistics and Data Management. Data support for Chapter 2 was provided by Benson Dutton, Jesse Levy, and Sam McNeill (ORD); Diana Verrilli (Urban Institute); and Stephen D. Harden and George I.. Kowalczyk (HK Reserch Corporation). Gary Olin, Ph.D. Susan Thomas and Young Park of Fu Associates provided analytic and programming support for Chapter 7. Cheryl Hickman was responsible for the preparation of the manuscript.

EXECUTIVE SUMMARY

The Omnibus Budget Reconciliation Act (OBRA) of 1989 mandated the development of a new payment system for physicians' services paid for by the Medicare program. There are three major components of the OBRA 1989 reforms: the development of a Medicare Fee Schedule (MFS); restrictions on physicians' ability to bill Medicare beneficiaries for amounts above the MFS; and the establishment of target rates of growth for expenditures for physicians' services. The MFS was implemented on January 1, 1992, under a 4-year transition period with the largest proportion of fee schedule changes implemented in 1992. The MFS is expected to have the effect of shifting Medicare payments toward primary care services and toward rural areas.

Preliminary 1992 data analyses show that the greatest expectations are being realized. A greater share of payments flowed from procedure-oriented services (surgery, anesthesia, assistants at surgery, diagnostic X-ray) toward primary care-oriented services (medical care, consultation) and from areas where physicians' earnings were higher (e.g., California) toward areas where physicians' earnings were lower (e.g., Mississippi). Relative rates of physician services by demographic and geographic categories remained unchanged; the MFS does not appear to have exacerbated any of the differentials that may have existed in the baseline period.

OBRA 1989 requires the Secretary of Health and Human Services to monitor and report annually to Congress on changes in utilization and access, by population groups, by geographic area, and by type of service; and on possible sources of inappropriate utilization. It is important to recognize that the OBRA 1989 reforms are part of a continuum of changes that have occurred in Medicare payment policies. Initiatives preceding the MFS, such as the reductions in prevailing charges for overpriced procedures instituted for one group of procedures in 1989 and for another group in 1990, have had an impact in earlier years and are likely to continue to influence access and utilization. Moreover, forces continue to influence the demand for and the supply of physicians' services not directly related to Medicare payment policy.

This 1993 report is the third annual report to Congress on utilization and access to services under the MFS. The report uses measures of "realized" access (such as utilization rates) and "potential" access (such as having a regular source of care). At the time the 1992 report was being prepared, the MFS had been in effect for only a few months; thus, data were unavailable to analyze any changes in access that may have occurred. This report is the first to contain 1992 data, albeit in a preliminary state.

Medicare administrative claims data, which contain abundant information on the use of Part B services, are being used to create monitoring files. Files are being generated to monitor Part B services with the physician specialty, type of service, geographic area, or the beneficiary as the unit of analysis. For monitoring beneficiary utilization rates, a classification system has been developed that groups all of the Part B billing codes into 77 broad categories. Because changes in physician payment policy may also affect access to surgical procedures, procedure rates will also be monitored using Medicare Part A administrative data.

To supplement Medicare data, two national surveys are being used to monitor other indicators of access. In addition, the Area Resource File is being used to monitor the supply of physicians. These data bases provide different perspectives on issues relating to access and utilization. Different data sources will at times show somewhat diverse findings that are not always explainable. Nonetheless, the use of multiple data sources provides more insight into changes that may occur in access and utilization than that provided by a single data source.

The basic analytical approach used in all of the analyses is to compare patterns and trends in the periods before and after the OBRA 1989 physician payment reforms were implemented. Vulnerable subgroups of the population are being monitored. A number of geographic groupings are also being monitored, including areas expected to undergo changes in payments due to the MFS.

To provide a range of perspectives on access and utilization, six separate analyses are presented. Chapters 2 and 3 employ the Medicare Part B monitoring files and contain preliminary data for 1992. These data are preliminary because they reflect claims information received in HCFA through December 1992. The other analyses contain data from the baseline period. The noteworthy findings reported in each of the analyses are summarized next.

Chapter 2 analyzes data from the Part B monitoring files created with the procedures, physician specialty, or the geographic area as the unit of analysis. The preliminary 1992 data show that the greatest expectations for the MFS are being realized, that is, a greater share of Medicare payments flowed from procedure-oriented services toward primary care-oriented services, and from areas where physician earnings were higher toward areas where physician earnings were lower.

Among broad types of physician services, the preliminary 1992 data indicate that nationally the share of payments for surgery services fell nearly 8 percent; for anesthesia and assistants at surgery the share fell by a similar percentage. The share for diagnostic radiology fell nearly 5 percent. For medical services the share grew by more than 3 percent while the share for consultation services grew by 25 percent.

For these broad types of physician services, the preliminary 1992 data indicate that the share of payments increased in 15 of the 17 States expected to have increases, increased in 8 States and the District of Columbia where decreases were expected; and increased in 10 States where virtually no change was expected. Payments decreased in Puerto Rico and 15 States expected to have decreases and in 2 States where increases were expected.

According to these preliminary 1992 data, increases in payments were substantially larger than expected (i.e., over 5 percent) in eight states: Delaware, Mississippi, New Hampshire, North Carolina, South Carolina, Utah, Virginia and Wyoming; decreases were much larger than expected in California and Maryland.

The distribution of payments among physician specialties changed about as expected: the primary care proportion increased almost 11 percent; the share for all surgical MDs combined fell by nearly 4 percent; the share for medical specialties grew by about 1 percent; and the proportion for other MD specialties fell about 1 percent. These data indicate that several non-MFS services and providers had large (10 percent or more) increases in their shares. Among these were independent laboratories and ambulance service suppliers.

The preliminary information will be updated. Final 1992 figures will be included in next year's report. An analysis of changes in practice patterns among a sample of physicians will also be included in next year's report; the approach is outlined in Chapter 2.

The analysis presented in Chapter 2 examines changes in the distribution of payments by eight broad types of services. Chapter 3 examines changes in the distribution of allowed charges for 77 broad types of services. The findings are similar: there was a significant shift in the relative share of allowed charges from the procedural categories of physician services to the management and evaluation categories.

Chapter 3 presents preliminary 1992 data from the Part B monitoring files that were created to analyze changes in utilization with the beneficiary as the unit of analysis. In the 1990 baseline year, Medicare beneficiaries 65 years of age and over averaged about 10.6 physician visits per person, with office visits accounting for 46 percent of total visits and inpatient hospital visits accounting for 30 percent of the total. The remaining categories of visits were emergency room (3 percent), nursing home/home (5 percent), specialist (13 percent), and consultations (4 percent).

In 1990, the rate of physicians' visits for persons 85 years of age and over was 99 percent greater than the rate for persons aged 65 to 74. The visit rate for women was 8 percent greater than for men. The visit rate for black beneficiaries was 2 percent lower than the rate for white persons.

Physician visits per person were about 14 percent lower in non-metropolitan areas than in metropolitan areas. Rates were highest in the large core counties of metropolitan areas. States in which the MFS was expected to decrease physician prices had higher rates of physician visits per 1,000 beneficiaries than did states in which prices are expected to increase or in which there is no expected change. For this report, no analyses were conducted by Health Professional Shortage Areas.

The Part B beneficiary files were used to track trends over 11 calendar quarters, from 1990 through the third quarter of 1992. The preliminary data indicate that the relative rates of use of physician's visits and consultations, by age, gender, race and geographic categories have remained unchanged, indicating that with the data available to date, the MFS does not appear to have changed access to care or to have exacerbated the differentials that existed in the baseline period.

Chapter 4 examines differences in access to selected in-hospital procedures by race during the period preceding the implementation of the MFS. Selected procedures were examined to monitor access to surgical services for a vulnerable subgroup of the Medicare population. Because the MFS was designed to shift payment from procedure-oriented services toward primary care, baseline utilization of these services is being examined. Procedures examined in this analysis include relatively new procedures such as coronary artery bypass graft as well as well-established procedures such as prostatectomy.

The analysis indicates that in the baseline period 1986-1990, the number of discharges per 1,000 enrollees was higher each year for black beneficiaries compared with white beneficiaries. The rate of procedures for black Medicare beneficiaries, however, was nearly always lower than the rate for white beneficiaries. Differences by race in the procedure rates tended to be greater for the newer and/or more elective procedures and less for the well-established procedures. Differences in 30-day post admission death rates were also examined because these rates can reflect differences in quality of care or in the severity of the patient mix. For most procedures, the 30-day death rates were higher for black beneficiaries. Understanding the factors that influence these differences requires information about medical need and appropriateness for these procedures, which is not generally available. These procedures will continue to be monitored as the MFS is implemented.

Chapter 5 presents an analysis of the supply of physicians in the U.S. during the period 1984-1990. The analysis shows that the supply of total physicians, as measured by physician-to-Medicare population ratios, increased at a slow but steady pace during the study period, rising from 1,249 physicians per 100,000 beneficiaries in 1984 to 1,325 per 100,000 in 1990. For every two physicians in a medical specialty in the U.S., there was about one physician in a surgical specialty. Over the study period the ratio of physicians in medical specialties to those in surgical specialties rose from 2.04 to 2.26, reflecting an increasing trend in the supply of medical physicians relative to surgeons.

In 1990, the number of physicians per 100,000 beneficiaries in metropolitan areas was more than twice as great as the corresponding number in non-metropolitan areas, with the lowest physician-to-population ratios occurring in thinly populated non-metropolitan areas. It is important to observe that the differences in physician-to-population ratios between metropolitan and non-metropolitan areas are of a much greater magnitude than the 14 percent difference found in Chapter 3 in physician visit rates for beneficiaries living in non-metropolitan areas compared with those living in metropolitan areas.

Chapter 6 presents an analysis of measures of access and utilization, using the 1991 Medicare Current Beneficiary Survey (MCBS). The MCBS was used to provide a baseline picture of issues relating to access to care prior to implementation of the MFS, for the Medicare aged and disabled populations. Included in this chapter is a geographic analysis performed with beneficiaries grouped into areas according to whether the MFS is expected to increase or decrease Medicare payments.

Two important results stand out. First, beneficiaries residing in areas expected to have payment increases exhibited the greatest barriers to care in the baseline period. Having a "barrier to care" means that the respondent had a health problem but did not receive care. Second, beneficiaries residing in areas expected to have payment decreases had a greater likelihood of having a visit in the baseline period.

In the descriptive analysis of the MCBS data, there was no difference by race in the percent of beneficiaries with a physician visit. However, in the analysis of Medicare claims data, the percent of black beneficiaries with a visit was lower than for white beneficiaries. In the multivariate analysis of the MCBS, there was no significant difference by race in the probability of seeing a physician. The multivariate analysis showed that the determinants of seeing a physician were income, supplemental health insurance, and health status.

Chapter 7 presents an analysis of the National Health Interview Survey (NHIS data, 1984-1990). The NHIS was used to examine patterns of use of physician services for several vulnerable groups within the population 65 years of age and over and 18-64 years of age. This analysis will be continued in future years as more data become available.

The analysis of the NHIS for the baseline period 1984-1989 found similar determinants of health care use as found in the MCBS. There were three significant factors found in the NHIS. One factor was health status, i.e., a measure of "need". Elderly persons in poor health use about 86 percent more physician visits than elderly persons in excellent health. Another factor was insurance coverage. In particular, the elderly with insurance supplemental to Medicare (Medigap or Medicaid) use significantly more physician services than the elderly with only Medicare coverage, even controlling for a number of factors (e.g., age, gender, and health status). A third factor was income.

We have received very few anecdotal accounts about beneficiaries having access difficulties or physicians curtailing services for Medicare beneficiaries. However, the next rounds of the MCBS and the NHIS can help provide information about any changes in access that may have occurred.

This report to Congress concludes with a description of efforts underway in the Agency for Health Care Policy Research and the Peer Review Program to improve the appropriateness of services received by Medicare beneficiaries.

Chapter 1

Introduction to the Third Annual Report to Congress on Access

The Omnibus Budget Reconciliation Act (OBRA) of 1989 (Public Law 101-239) amended the Social Security Act by adding section 1848, "Payment for Physicians' Services". Section 1848 specified three major components of a new payment system for physicians' services: the development of a fee schedule for Medicare; the specification of restrictions on the ability of physicians to bill Medicare beneficiaries for amounts exceeding the fee schedule; and the establishment of processes to set target growth rates for expenditures for physicians' services. The Medicare fee schedule (MFS) went into effect on January 1, 1992, under a 4 year transition period.

In recognition of the far-reaching changes in payment methodology, section 1848(g)(7) requires the Secretary of the Department of Health and Human Services to monitor and report annually to Congress:

(i) Changes in the utilization of and access to services furnished under this part within geographic, population, and service related categories.

(ii) Possible sources of inappropriate utilization of services furnished under this part which contribute to the overall level of expenditures under this part.

(iii) Factors underlying these changes and their interrelationships.

This is the third annual report to Congress on utilization and access to services under the Medicare Fee Schedule (MFS). The first report, delivered to Congress in 1991, centered around a review of the potential analytical approaches and data bases that could be used for monitoring changes in utilization and access (Health Care Financing Administration (HCFA), 1991). The second report, delivered to Congress in 1992, provided a detailed discussion of the plan that was designed and put in place for monitoring access to care (HCFA, 1992). At the time the 1992 report was being prepared, the MFS was in effect for only a few months; consequently, no data were available to examine the impact of the OBRA 1989 payment reform provisions. The data and analyses presented in that report focused on gaining an understanding of access to and utilization of services in the period preceding the implementation of the MFS. As this third annual report to Congress is being prepared, the MFS has been in effect for a little over one year. The first early returns from the data system set up in HCFA to monitor changes in utilization and access are presented in this report to Congress.

Overview

Defining and measuring access to care. There are many measures of access, which generally can be grouped into measures of potential access and of realized access (Aday et al., 1984; Bernardin, M., and Schoenman, J., 1991; Penchansky, R. and Thomas, W., 1981). Measures of potential access include physician to population ratios and having a regular source of care. Commonly used measures of realized access are utilization rates. In monitoring access to care, "need" is the most meaningful factor to weigh in evaluating any of these measures of access. However, need is not generally available from administrative data. In this report, realized access, that is, utilization rates, will be monitored and used as the primary measure of access in the analyses based on Medicare administrative data. In the analyses based on a national survey, measures of potential access (need characteristics such as health status; predisposing factors such as education; and enabling factors such as income) are used.

OBRA 1989 payment reform part of a continuum. In assessing the impact of the OBRA 1989 physician payment reforms it is important to consider the fact that these changes are part of a continuum of changes that have and will continue to occurr. In the period preceding the implementation of the MFS many changes were initiated in the Part B program, including the participating physician program begun in 1984, which provided incentives for physicians to accept assignment; the Maximum Allowable Actual Charge (MAAC) limits which began in 1987 and restricted the amount non-participating physicians could charge; the reductions in prevailing charges for overpriced procedures instituted for one group of procedures in 1988 (e.g., pacemaker implantation) and for another in 1990 (e.g., cholescystectomy); and the institution of fee schedules for radiology in 1989 and anesthesia service in 1990. In addition, some Medicare policy changes were instituted. These occurred at the same time as other factors affecting the provision of physicians' services were occurring. Thus, it is difficult to assess the effect that any particular factor may have.

There will continue to be other forces that influence the demand for and the supply of physicians' services that are unrelated to changes in Medicare physician payment policy, including changes in medical technology, and efforts to improve appropriateness and efficiency of the health care delivery system. Of particular interest will be changes resulting from the Administration's health care reform initiative. Therefore, it will be important to analyze changes in access and appropriateness in the light of these many external forces.

Analytical approaches

The basic approach for monitoring access to services will be to analyze patterns and trends in utilization before and after the OBRA 1989 physician payment reforms were implemented, focusing on certain vulnerable subgroups of the population. Utilization will be monitored by a number of sociodemographic characteristics including race/ethnicity, income status, and for the very old. Access and utilization will be monitored using a number of different geographic groupings, including metropolitan/rural areas and areas with a shortage of health professionals. Trends in utilization for all of these subgroups in the period before the implementation of the OBRA 1989 physician payment reform will be compared with emerging trends to evaluate whether there are indications that payment reform has improved or exacerbated differentials in access and utilization that may have already existed.

Data bases. The primary source of data for monitoring access to care is the National Claims History (NCH), the HCFA data base which contains all Medicare claims records. A three-part monitoring system has been designed to generate information from the NCH to monitor access and utilization beginning with services provided on January 1,

1992. The NCH data used for monitoring includes only Part B claims processed by Medicare carriers and thus exclude Part B Outpatient Hospital bills which are processed by Medicare intermediaries. The first file is the Supplementary Medical Insurance (Part B) beneficiary-based file, organized to provide information about utilization of Part B services with the beneficiary as the unit of analysis.

The second and third files were designed to complement the beneficiary-based file. One file is the physician/supplier/procedure summary file which will be used to monitor aggregate changes that occur in the number and type of services provided, within various specialty designations of physicians, across geographic areas, and by place of service.

The third file is the physician file which is designed to contain all claims for roughly a five percent sample of physicians who bill Medicare for services. The unit of analysis is the physician. In 1989, HCFA implemented a national Medicare Physician Identification and Eligibility System (MPIES) registry that uniquely identifies physicians serving Medicare beneficiaries. This registry is designed to link all Medicare carrier provider numbers with a unique physician identifier number (UPIN). In April 1991, HCFA began requiring that the UPIN be placed on physicians' claims, and in January 1992 began enforcing this requirement, although compliance is not yet complete.

Development of a classification system for physicians' services

A workable classification system was needed for monitoring Part B services. The classification system used in HCFA for paying for physicians' services is known as the

HCFA Common Procedure Coding System (HCPCS), which contains all Current Procedural Terminology, Fourth Edition (CPT-4) codes published by the American Medical Association as well as HCFA-specific codes. There are over 7,000 individual codes in CPT-4. The classification system being used to monitor access and utilization in the beneficiary-based file was originally designed by the Urban Institute (Berenson, R. and Holahan, J., 1990) and later modified by HCFA staff. It has 77 categories of services, known as "Berenson-Eggers" categories. As new codes are approved for payment, they are incorporated into the classification system (HCFA, 1992).

Preliminary 1992 data presented

As this 1993 report was being prepared, the only data available for analyses from the period after the implementation of the MFS on January 1, 1992 are from the Part B monitoring system. There are two caveats that must be stressed. First, the MFS is being phased in under a 4-year transition period; not all effects of the MFS will be felt in the first year. Second, the 1992 data from the monitoring system must be considered preliminary because the monitoring files were updated only through December 1992, resulting in incomplete 1992 data, especially for the 4th quarter of the year. Consequently, these early returns from the Part B monitoring system must be viewed with some caution.

Introduction

Six of the chapters (Chapter 2-7) in this report are devoted to separate analyses, intended to provide different perspectives on the complex issues relating to access and utilization. The first two analyses (Chapters 2 and 3) present early returns from the Part B monitoring system, with the intention of gaining an overall impression of what changes occurred during the first year of the implementation of the MFS.

Because the MFS is expected to shift payments from surgical services to medical care services it is important to monitor changes that may occur in access to surgical procedures for vulnerable subgroups of the population. Chapter 4 presents some baseline data by race for 20 procedures that are performed in the hospital.

Understanding trends in the supply of physicians presents another perspective on access to Part B services. Chapter 5 uses tabulations on physician population ratios to present trends in the supply of physicians (total, medical, and surgical) by geographic area.

Medicare administrative claims data contain only limited information on the characteristics of the beneficiaries. However, several of the large National surveys in the U.S. have been designed to collect sociodemographic, economic, and health status characteristics of the population in the U.S. Chapter 6 uses data from the Medicare Current Beneficiary Survey (MCBS) from 1991 to provide a richer and more indepth understanding of the characteristics of Medicare beneficiaries and how these characteristics influence access and utilization. Chapter 7 uses the National Health Interview Survey (NHIS) from 1984-1990 to present a baseline analysis of access and utilization by the elderly and non-elderly populations in the U.S.

It should be emphasized that the six separate analyses use either different data sources or different configurations of Medicare administrative data and consequently some differences are to be expected in the findings. For example, the NHIS and the MCBS are confined to information collected from Medicare beneficiaries not living in institutional settings while the analyses from the new monitoring files contain information on all Medicare beneficiaries. Each analysis chapter has a methods section which describes the data used for the study.

The chapter titles and further details follow. All of the chapters were prepared by staff in the Office of Research and Demonstrations (ORD) in HCFA, except as noted below.

- **Chapter 1: Introduction to the third annual report to Congress on access**

- **Chapter 2: Access and utilization from the physician perspective: 1992 Preliminary Data**

  This chapter provides data on changes in shares of allowed charges for Part B services between 1991 and 1992, using the Part B monitoring system, with type of service, specialty, geographic area or the physician as the unit of analysis.

- **Chapter 3: Beneficiary Access and Utilization: 1992 Preliminary Data**

  This chapter provides data on trends in utilization of Part B services before and after the implementation of the Medicare fee schedule, using the Part B monitoring system, with the beneficiary as the unit of analysis.

- **Chapter 4: Access to inpatient hospital procedures, 1986-1990**

  This chapter presents baseline data on trends in hospitalization and inpatient surgery rates by race, using Medicare Part A data.

- **Chapter 5: Baseline trends in the supply of physicians, 1984-1990**

  This chapter uses data from the Area Resource File, maintained by the Health Resources and Services Administration. Using tables prepared by Project Hope, an analysis is provided of baseline trends in the supply of physicians.

- **Chapter 6: A baseline analysis: Utilization, access and satisfaction with care from the Medicare Current Beneficiary Survey, 1991**

  This chapter was prepared by the Center for Health Economics Research. It uses the MCBS to analyze baseline data relating to access and utilization for the elderly population and the disabled population entitled to Medicare.

- **Chapter 7: A baseline analysis: Utilization, access and satisfaction with care from the National Health Interview Survey, 1984-1990**

  This chapter uses the NHIS to analyze baseline trends in access and utilization for the elderly compared to the population under age 65.

- **Chapter 8: Discussion, recommendations, and future work**

  This chapter concludes with a discussion of related activities of the Peer Review Organizations, the Agency for Health Care Policy and Research, and future directions.

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Chapter 2

Access and Utilization From the Physician Perspective: 1992 Preliminary Data

INTRODUCTION

Simulations released with the final rule for the 1992 Medicare Fee Schedule (MFS) (Federal Register, November 25, 1991) suggest that while total outlays for physician services would equal those that the former payment method would have produced, outlays in States were estimated to change by between minus 2 percent in four States (Alaska, Florida, Hawaii and Nevada) and rise by as much as 4 percent in one State (Colorado). Among various medical specialties, the Health Care Financing Administration (HCFA) expected the national total outlays to change by between plus 18 percent (general practitioners) and minus 5 percent (thoracic surgeons). Variations in outlays by locality within States and for particular practices were expected to have even greater amplitude. There were concerns that these payment changes could lead to changes in utilization and access to physician services. As was noted in the 1992 report (HCFA, 1992), the changes in payments might invoke a variety of changes among physicians and among the beneficiaries who seek medical care. Changes in the health care delivery sector that are unrelated to the Medicare payment changes, including changes in medical technology and its diffusion, can affect measures of utilization. Also, natural disasters, such as hurricanes, may have local impacts on the health system and its use.

While 1992 was only the first year of the 4-year transition to a national MFS, the transition was designed so that the largest portion (about 44 percent) of the eventual payment changes would occur from 1991 to 1992. The remainder of the changes would occur at equal rates over each of the following 4 years, except for refinements to the relative value scale and/or adjustments resulting from the Medicare volume performance standards.

HCFA has developed two national claims history data files for physician monitoring. The National Claims History/Physician/Supplier Procedure Summary file (NCH/PSP) outputs summarize 100 percent of claims data by procedure code at the specialty and Medicare pricing locality level, based upon the place where the service was performed. The NCH/PSP file will be updated for 6 months following the end of the year. This summary data is meant primarily for use in detecting large changes in amounts and kinds of particular services or outlays. The National Claims History Provider File (NCH/PF) contains information on all Part B claims from a sample of physicians. It can be used to monitor and examine access to and utilization of physicians' services including the number and types of beneficiaries a physician treats, revenue from Medicare, and the volume and kinds of services provided. HCFA has also sponsored extramural research which is intended to yield more information and knowledge about the factors that might influence utilization and access within Medicare's physician payment localities.

This chapter has three parts. First, using the NCH/PSP, data are presented about the changes that have been observed thus far in the distribution of Medicare physician payments since the MFS for physician services was implemented. Next, we describe a study that is being designed to analyze the NCH/PF data from States for which most NCH records for 1991 services included the performing doctor's Uniform Physician Identification Number (UPIN). The final part briefly describes two extramural projects designed to define trends on physicians that treated Medicare beneficiaries prior to the MFS.

PART 1: Changes in the Distribution of Payments

Data

This section discusses primarily the types of service which are predominantly provided by physicians; medical care, surgery, consultations, diagnostic x-ray, diagnostic laboratory, radiation therapy, anesthesia and assistants at surgery. The analyses in this part of the chapter are not restricted to those physician services that are included in the MFS for physicians' services. In addition, non-MFS Part B service claims for non-physician services, processed by Medicare carriers, such as durable medical equipment, ambulatory surgical center facility fee, and others are considered. Utilization of and access to many of these non-fee-schedule services may be affected by the implementation of the physician fee schedule.

It should be noted that some non-physician limited license practitioners or suppliers also perform some MFS services. Principal examples include services of independent laboratories, which account for nearly one-third of total allowed charges for diagnostic laboratory type of service, and certified-registered nurse anesthetists, who account for about one-sixth of total allowed charges for anesthesia type of service. Further, some of the types of services which are not discussed in detail here are also physician services. Among these are monthly capitation payments for renal dialysis (not under the MFS, but about 0.4 percent of all carrier allowed charges nationally) which are important for some internists (nearly 1 percent of their total allowed charges) and nephrologists (about one-fourth of their total allowed charges), and psychological therapy (about 0.7 percent of carrier allowed charges nationally) which are important for some psychiatrists (about 30 percent of their total allowed charges).

At the time this chapter was being prepared, the NCH/PSP file had been updated with 1992 claims that were received in HCFA through December 1992, which means that the file is incomplete, particularly for the final quarter of 1992. In 1991, total allowed charges were $42.9 billion; the preliminary 1992 file contains records of claims for $38.3 billion. Final 1992 totals are not anticipated to be available until Summer 1993. Accordingly, most of the figures presented in the tables are indices. They compare the share or portion of allowed charges in the preliminary 1992 file for a described service, area or specialty with the similar share for 1991. For example, if a service, place or specialty accounted for 8 percent of preliminary 1992 national grand total allowed charges, but 4 percent share of 1991 grand total allowed charges, its 1992 preliminary index would be shown as 200.0, (ie 8/4 x 100). The preliminary 1992 figure of $38.3 billion is expected to increase by about 15 percent when the final tally is taken in July 1993. While we believe that most of the eventual 1992 proportions have, by-and-large, been established at this point, we intend to update the analyses after the final tallies are available. That analysis will include changes in dollar amounts, as well as in shares. It should also be noted that the 1991 data on distribution of allowed charges for States is virtually complete for all areas while the preliminary 1992 shares data are affected by State differences in lag times involved in reporting and processing claims. Thus, some share patterns for the final 1992 figures, which will be available in summer 1993, are likely to change.

Expected payment distribution for physician services

It was expected that implementation of the MFS for physician services would result in changes in the distribution of payments among areas, among specialties and among various types of physician services. Estimates of expected average changes in outlays for States and specialties were issued with the Final Rule for the 1992 MFS (Federal Register, November 25, 1991). In general, more payments were expected to go toward areas, specialties, and services where historic fees were lower than average and vice versa. The strongest expectation was for a greater share of payments to flow from procedure-oriented services and physicians toward primary-care oriented services and physicians, and from areas where physician earnings were higher toward areas where physician earnings were lower. The preliminary data suggest that these expectations have largely been realized.

Changes in allowed charge distribution by types of services

Table 1 presents the indexed shares of nationally allowed charges by nine broad types of service categories. In preliminary data for 1992, the proportion of allowed charges for surgery has clearly declined nationally, and the shares for medical and consultation services have risen, relative to 1991. The overall decline for surgery was nearly 8 percent, while the increases for medical care and consultation were 3.3 and 25.2 percent, respectively. Payment shares for diagnostic X-ray, anesthesia and assistants at surgery also fell, while those for diagnostic laboratory tests and radiation therapy grew. The proportion for "all other covered services" (most of which are not MFS-covered) increased by 5 percent, much of which was a 50 percent increase in the share for ambulatory surgical center services.

Changes in allowed charge shares by type of service within States

In table 2, pluses and minuses are used to show how allowed charge patterns changed within each State between 1991 and 1992 for the nine broad type of service categories. For medical care (service type 1), the share of carrier allowed charges increased (+) in all States except Arizona, California, Delaware, Florida, Nevada, the Dakotas, Washington and Wyoming. In Washington, the decline for medical care's share was more than offset by the growth for consultation. In the other States, there was large growth in shares for services not covered by MFS, such as diagnostic laboratory, or ambulatory surgical center facility payment or durable medical equipment. For surgical services (type 2), the share of allowed charges fell (-) in all States. The proportion for consultation (type 3) rose within all States except Alaska, Maryland, Missouri and

Oregon. However, in those four States, the growth for medical care services was larger than the declines for consultations. The share for diagnostic X-ray (type 4) increased only in Arizona, Iowa, Nevada and New York. The proportion for diagnostic laboratory (type 5) increased within 27 places and declined within 25 places. Radiation therapy (type 6) shares increased within 28 places, was unchanged in one State and declined within 23 places. The share for anesthesia (type 7) increased only in Rhode Island, Utah and West Virginia. The share for assistants at surgery (type 8) grew in California and Delaware, but declined elsewhere. The proportion for all other carrier paid Part B services combined[1] increased in all places except Colorado, Delaware, District of Columbia, Hawaii, Michigan, New Jersey, New York, Pennsylvania, South Carolina and Virginia.

Shifts in national allowed charge shares by State

The impact estimates accompanying the November 25, 1991 Final Rules for the Medicare Fee Schedule indicated that 1992 physician services outlays would increase in 17 States overall by one percentage point or more, relative to a continuance of the former payment system, would have virtually no change in 10 States, and would fall by one percentage point or more in 24 States and the District of Columbia. These estimates were based largely upon the physician analysis file developed for that rule, which simulated 1991 payments from a file of actual 1989 payments, after adjusting for various updates and overpriced procedure reductions.

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[1] Other medical services include: whole blood or packed red cells; used durable medical equipment; high risk mammography; low risk mammography; ambulatory surgical center facility usage; immunosuppressive drugs; hospice care; installment purchase of durable medical equipment; renal supplies in home; monthly capitation payment for dialysis; kidney donor; lump sum purchase of durable medical equipment; rental of durable medical equipment; psychological tests; occupational therapy; pneumococcal vaccine; physical therapy; second surgical opinion; and third surgical opinion.

Table 2 shows the expected direction (+ or -) in 1992 in each State's proportion of allowed charges. It also presents the indexed shares of allowed charges by State in two ways. One set of numbers shows the changes in each State's proportion of allowed charges for all types of carrier-paid Part B services. The other set of numbers relates only to the key types of physician services -- medical care, surgery, consultation, diagnostic X-ray, diagnostic laboratory, radiation therapy and assistants at surgery. Considering only the key types of physician services, in the preliminary data for 1992, the share of payments increased in 15 of the 17 States expected to realize increases of a percentage point or more. The share of payments also grew in all of the 10 places where virtually no change was expected, and in 9 of the 24 places where reductions of over one percentage point were estimated. Seventeen States and Puerto Rico thus far have reduced shares of allowed 1992 charges versus those in 1991. These include 15 States for which reductions of one percentage point or more were expected and two States where outlays were expected to increase by a percentage point.

There are many possible reasons why the actual change in outlay proportion may differ from the changes estimated for the Final Rule. The estimates for the final rule only considered the services covered by the MFS. The changes reported here encompass all carrier-paid types of Part B services. Another factor that may affect these figures is that the actual change in shares reflects the 1991 to 1992 differences by State in number of Part B enrollees and in number of HMO enrollees. In addition, changes in the supply and participation and specialty mix of billing physicians and suppliers, and changes in the mix of services provided to Medicare enrollees may affect these figures.

In the preliminary 1992 data aggregated for the key 8 physician types of service the places having the largest declines, over 5 percent, were California and Maryland. Declines of 3 to 4 percent appear to have occurred in Alaska, Louisiana, Puerto Rico and West Virginia. Declines in Hawaii, New York, Nevada and Ohio were about 2 percent. The share for New Mexico fell by more than 1 percent, while those for Arizona, Arkansas, Florida, Illinois, Nebraska, Texas and Washington fell by less than 1 percent. If the total for all types of carrier-paid services are considered, Arizona, Arkansas, Florida, Illinois, Texas and Washington all had slightly increased shares, while that for Pennsylvania fell.

In 33 States and the District of Columbia, the preliminary 1992 data suggest increased shares of allowed charges for the key 8 types of service relative to 1991. States whose preliminary shares increased by over 5 percent included Delaware, Mississippi, New Hampshire, North Carolina, South Carolina, Utah, Virginia and Wyoming. Places where the preliminary 1992 proportions are between 3 and 5 percent higher are Colorado, District of Columbia, Georgia, Idaho, Indiana, Iowa, Kentucky, New Jersey, North Dakota, Oregon, South Dakota and Vermont. The shares grew by between 1 and 3 percent thus far in Alabama, Kansas, Maine, Michigan, Minnesota, Pennsylvania, Rhode Island, Tennessee, and Wisconsin. Increases of less than 1 percent were in Connecticut, Massachusetts, Missouri, Montana and Oklahoma. As noted earlier, when all types of service are considered, Pennsylvania's proportion fell slightly.

Impact on physician specialties

Numerous changes occurred in HCFA's classification and coding system used to identify various specialties of physicians and various kinds of limited license practitioners and suppliers and facilities that may bill Medicare during the period when the Medicare Fee Schedule was implemented. Thus, it is difficult to provide a complete and meaningful picture of the extent to which various classes have been impacted. We can only provide fairly robust comparisons of changes in shares of Part B allowed charges for broader groupings of physicians, practitioners, facilities and suppliers. We will also provide some discussion of share changes for the "old" HCFA specialty types, even though the numbers of physicians of a type may have markedly changed during 1992. We plan to study this phenomenon more fully in the coming year.

Changes for broad specialty categories

Table 3 presents preliminary allowed charge index shares of total Part B carrier-processed allowed charges for what we believe are generally comparable categories of physicians, practitioners, facilities and suppliers for both periods. However, it should be noted that the same physician might have had two codes in the course of one of the calendar periods, especially in 1992. The groupings were formed according to the most likely "old" specialty code (i.e., most emergency room physicians were formerly coded as General Practice or Family Practice), or programmatic perspectives (i.e., dermatologists are considered surgeons when establishing the Medicare Volume Performance Standards for Surgery). These groupings do not necessarily conform with the groupings of specialties used by the American Medical Association and others.

Impacts on particular specialties

MD, Surgeons -- It was expected that most surgical specialties other than otolaryngologists and dermatologists would receive lower shares of payments in 1992. In the preliminary 1992 data, the proportion of allowed charges for otolaryngology, dermatology, colorectal surgery and urology increased by over 2 percent. Thoracic surgeons' share nominally declined from 2.3 percent in 1991 to 1.6 percent in 1992. However, the new classifications of cardiac surgery and vascular surgery, when combined, had a 0.7 percent share of the preliminary 1992 allowed charges, leaving the proportion for these 3 categories combined virtually unchanged. Ophthalmologists share of allowed charges fell by over 2 percent. The proportion for orthopedic surgeons fell almost 7 percent. Shares for general surgery and for plastic and reconstructive surgery nominally fell by about 15 percent, but it is likely that some general surgeons were reclassified into subspecialties during 1992. For all surgical MDs combined, the proportion fell by nearly 4 percent.

MD, Medical Specialties -- It was expected that relative to the former payment method, payments for most medical specialties other than internal medicine would fall in 1992, with the largest declines occurring for gastroenterology and cardiology. In the preliminary 1992 data, the combined shares for all medical specialties grew by almost one percent. The proportion for cardiology fell about 3 percent, from 6.7 percent to a preliminary 6.5 percent. Preliminary 1992 shares for gastroenterology increased by about 3 percent. The shares for neurology fell by about a percent, and that for pediatrics by about 5 percent. The share for internal medicine nominally fell by almost 15 percent. But we believe nearly all of this was due to reclassifications during 1992 into medical subspecialties, because the seven newest medical subspecialty codes accounted for 1.8 percent of national allowed charges in the preliminary 1992 data, and many other medical subspecialties had fairly large share increases. The largest nominal gains for medical specialties reported in both years of data were geriatrics (over 100 percent) and allergy and immunology (over 50 percent).

MD, Primary Care Specialties -- It was expected that payments to general practice and family practice would rise significantly in 1992. The proportion of allowed charges for family practice grew by over 14 percent, from 4.1 percent to a preliminary 4.7 percent. The nominal proportion for general practice fell nearly 10 percent, from 2.8 percent to 2.6 percent. But this again is believed to largely reflect the specialty redesignations during 1992. Emergency medicine specialists, most of whom were formerly classified as general practice, had a nearly 0.4 percent share of preliminary 1992 allowed charges. For these 3 specialties combined, the preliminary 1992 share increased by almost 11 percent.

MD, Mental Health Specialties -- In the preliminary 1992 data, the proportion for this category declined by about 3 percent, which was somewhat more than expected.

Other MD Specialties: In 1992, payments were expected to fall for specialists in radiology, pathology and anesthesiology. The nominal share for radiologists fell by 7 percent. But when allowances for nuclear medicine, radiation oncology and interventional radiology are also considered, the combined proportion grew slightly. The share for anesthesiologists fell by almost 10 percent. The share for pathologists increased by 6 percent. The overall category declined by about 1 percent.

Clinics and Unknown MD Specialties: The proportion for this grouping fell by 25 percent in preliminary 1992 data. We suspect that this change is also a reflection of the new specialty designation effort during 1992, and to constraining usage of code 70 for single-specialty groups. In each period, the "unknown" category had a share of 0.2 percent.

Dental and Osteopathic Subspecialties -- The shares for this grouping were rather small (0.4 percent in 1991 and 0.2 percent in preliminary 1992 data) in both periods. During 1992, many osteopathic subspecialties were changed to correspond with physician specialties. These reclassifications explain this decline.

Chiropractors, Optometrists and Podiatrists -- Each of these limited license practitioner specialties was expected to receive increased payments in 1992. The preliminary data suggest that the proportion for chiropractors rose over 8 percent, and that for optometrists rose nearly 7 percent. The preliminary 1992 share for podiatrists fell by about 3 percent. For this grouping, the combined share rose by less than a percent.

Other non-physician practitioners -- The proportion of total allowed charges for other non-physician limited license practitioners increased by 16 percent in the preliminary 1992 data. The most growth occurred among nurse practitioners, physician assistants, psychologists not billing independently, and licensed clinical social workers. The share for certified-registered nurse anesthetists (CRNAs) and anesthesia assistants grew by 8 percent.

Facilities and Laboratories -- This category's proportion of payments grew by over 13 percent in the preliminary 1992 data. The largest growth in this grouping occurred for independent physiological laboratories and independent laboratories.

Other Suppliers -- This final category, various suppliers, grew by over 4 percent in the preliminary 1992 data. The growth was experienced among most of these supplier categories. The most significant increases, about 10 percent each, were for ambulance service suppliers and for other suppliers (e.g., drug and department stores, code 87).

PART 2: Design of a Study of a Sample of Physicians

Rationale for the study

Why approach the evaluation of access changes using the physician as the unit of analysis? Because this perspective is an avenue for the observation of utilization and practice patterns and their changes over time particularly in relation to implementation of physician payment policy. Beneficiary utilization data also contribute to the understanding of access, but only partially delineate the mechanisms by which access is hindered or promoted. Both data sources are desirable for monitoring and policy refinement.

To determine whether and how the MFS may have affected beneficiaries' access to health care, HCFA has designed a study of physician service delivery to Medicare beneficiaries in 1991 and 1992. A sample of physicians with allowed Medicare claims in those two years are being selected for study. Their Medicare claims are being collected from the National Claims History (NCH) and assembled as an analytic data file.

Records in this file pertain to an individual physician's service delivery, rather than to individual beneficiary utilization. The physician sample file, when complete, captures all Medicare physician services. The information enables reasonably reliable measurement of service delivery patterns and of physician practice characteristics. The eventual sample should be representative of most segments of the population of physicians treating Medicare beneficiaries.

Historically, Medicare claims data have not been fully analyzable at the individual physician level. Past use of billing numbers as a way of associating claims to practitioners involved considerable difficulties in interpretation. Organizational forms for the practice of medicine have been changing and will continue to evolve, making it essential that researchers retain the ability to study physician health delivery practices. This study will examine only physicians who bill Medicare carriers, because the details of services provided through prepayment approaches such as HMOs are not routinely reported to HCFA.

Sample design

Selection of physicians for the sample was based on the terminal digits of the Unique Physician Identification Number (UPIN). The UPIN system was required under the 1985 Consolidated Omnibus Budget Reconciliation Act. On a Part B claim the UPIN identifies the physician who performed each line item service. Because the terminal digits of the UPIN are uniformly distributed and randomly assigned, the UPIN is an appropriate basis for unbiased selection of units of observation for the physician sample.

Use of a constant set of terminal digits for sampling in each period should lead to a statistically representative sample of the Medicare physician population, which currently numbers approximately 650,000. Further, with external validation of physician status, members of the sample can be studied longitudinally under statistical assumptions permitting more precise inference.

The sample size expected from terminal digit sampling was designed to be large enough to permit reliable analysis of Medicare physicians in individual States. At the same time, the selection method produces self-weighting samples at both the State and national levels. Currently, limitations in UPIN reporting prevent a full national analysis.

Hence, we plan to limit the initial study to States which had a high (over 90 percent) reporting rate of performing physician UPINs in 1991.

Description of the data available

The Medicare claims generating the physician sample contain descriptors for the performing physician, the patients seen, the services delivered, the delivery setting, and the date of service delivery. In this discussion of patients, physicians, and services, each separate service, termed a line item within a Part B bill, is considered as a separate claim. Selected descriptors were retained for the present study.

Patient data in this analysis will include the Health Insurance Claim Beneficiary Identification Code (HICBIC), date of birth, sex, race, and Medicare status code. The BIC portion of the HICBIC identifies the type of relationship between a patient and a primary Medicare beneficiary. The Medicare status code describes the basis for the beneficiary's entitlement to Medicare benefits.

Enumeration of patients seen by each physician will be based on the HICBIC. Over time, the BIC portion of the code can change for an individual, but no attempt will be made to correct the small overenumeration arising during the short (3 to 6 months of each year) observation periods for this study.

Physician descriptors will include the specialty, Medicare physician participation status, MFS payment locality, carrier Profiling Identification Number (PIN), and the UPIN. An assignment status code describes whether the physician accepted assignment on the claim. The MFS payment locality is the area determining the applicable fee. Used for carrier payment control, the PIN identifies the billing entity under which the physician submits claims. Because a physician can have multiple PINs, this data element may be used as a marker for the number of practice sites in which the physician delivers services.

Service descriptors in this analysis will be the type of service, the number of services by type, and the covered and allowed charges by type. The typology for services comes from a classification system developed by the Urban Institute and HCFA staff to reduce the thousands of procedure codes to 77 manageable categories. (See Chapter 3 for a fuller discussion of the classification system.)

Research questions and analytic logic

The primary research questions are:

1. Was the implementation of the MFS associated with less willingness on the part of physicians to serve Medicare patients?

2. Is there any evidence that the MFS led physician providers to see fewer Medicare patients than in the past?

3. Did the fee schedule cause physician providers to lower the apparent general level of medical services they provide to the Medicare patients they do see?

4. Was the fee schedule associated with changes in delivery of specific services or types of services, such that access might be reduced?

Detailed analysis of these questions can proceed as more and better data are assembled. For example, to examine the delivery of specific services in relation to implementation of the fee schedule, it will be useful later to link the service-specific price changes to the counts of those services found in the sample. This would permit inferences predicated on linkage of outcomes to the assumed causal mechanism.

For the analysis in the near term, we believe that preliminary evidence on possible MFS impacts can be developed by examining changes in measures from 1991 to 1992. Strictly, the comparisons assume that time-related change solely reflects MFS impacts. This assumption is tenable when the time horizon is not too long, and when the environment is generally stable (i.e., extraneous influences are not changing as well). The observation period for this study is 2 years, a relatively short time frame. However, stability in the environment cannot be assumed, particularly in view of the series of Medicare payment and coverage policy changes initiated in recent years. Data weaknesses such as coding changes can also hinder valid inference. Consequently, simplistic mechanical inferences from the pre/post comparisons are to be avoided. Additionally, we attempt a qualitative form of control for underlying confounding effects by examining trends in several measures in the years leading up to the MFS.

Explanation of measures for analysis

Table 4 lists a preliminary set of measures designed to examine some aspects of the basic research questions. Section A presents summary measures of physician service delivery that do not consider distinct types of services. Section B lists service-specific measures.

Section A

1. **Average number of patients per physician.** Differences in the physician's Medicare "caseload" between 1991 and 1992 may indicate one possible physician response to MFS -- seeing fewer Medicare patients. Caseload change will also be affected by factors unrelated to MFS, such as changes in HMO enrollment and illness rates (e.g., flu epidemics) in the Medicare population, among other things.

2. **Number of beneficiaries in the sample and the beneficiaries to physicians ratio.** We expect the number of beneficiaries in the sample to grow approximately in proportion to growth in annual Medicare enrollment (exclusive of HMO members). However, given the enrollment-driven increases, it is possible that growth will be faster than growth in the number of physicians in the sample. Potential concentration of care among fewer physicians will be examined by the beneficiaries to physicians ratio.

3. **Number of physicians in the sample.** We will compare the number of physicians in the sample from year to year to look for any impact of the fee schedule on physicians' willingness to continue as Medicare providers. The comparison complements the examination of sample beneficiary and physician growth rates. Data from external sources such as the American Medical Association and HCFA's UPIN registry files can be used to interpret changes in the physician count.

4. **Average number of services per patient.** This measure reflects the general level of effort in relation to the Medicare patients a physician sees, regardless of whether the caseload size has changed.

5. **Average adjusted number of services per patient.** For the sake of comparability with data developed from the utilization perspective, the services counts in this measure are also adjusted for the frequency of bilateral procedures, assistance at surgery/multiple surgeons, multiple billed components of a single diagnostic test, and other utilization measurement considerations. However, we would in general expect that, compared to population-based utilization rates, our estimates will always be lower because the sampling unit is not the beneficiary. In other words, the beneficiaries being treated by sample physicians may also be receiving medical services from physicians who are not part of this sample.

6. **Average number of services per physician.** Caseload declines are not necessarily under the physician's control, but if total services to existing patients continue or increase, then it would appear that the physician considers it worthwhile to perform services at the Medicare-established fee. Such a conclusion has indirect implications for access. On the other hand, under an assumption that a certain amount of care is not strictly medically necessary, and in the presence of small changes in caseload, the average number of services per physician is a general measure of level of average physician effort with respect to Medicare.

7. **Average number of services per beneficiary.** This ratio differs from services per patient in that beneficiaries in the sample are counted only once in the denominator. Whereas the number of services per patient measures care delivery at the level of the individual physician-patient relationship, this ratio is independent of the number of relationships each beneficiary has with sampled physicians. Beneficiaries' multiple relationships are a function of the sampling ratio, which in our sampling plan varies by State. The average number of services per beneficiary, therefore, is not comparable across States[2] but may provide information about system-level changes in delivery patterns within States.

8. **Total covered and allowed charges; average covered and allowed charges per physician.** These measures of reimbursements provide information about changes

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[2] This is true for the same reason that our "utilization rates" are not comparable to population-based measures. In some States, we have more of the beneficiaries' total utilization than in others.

in physician remuneration with respect to Medicare. They help us gauge the economic importance of Medicare in the physician's practice. Another use for charges is to provide a common unit for measuring the mix of disparate services a physician may deliver. This use becomes more important in the event that coding changes prevent consistent classification of services.

9. **Average percent of allowed charges that are assigned.** Assignment rates have been used in the past as a measure of Medicare beneficiaries' access to health care. The assignment rates from the physician sample will provide more-reliable estimates at the physician level than have been available to date, in addition to serving the purposes of the access analysis.

Section B

1. **Number and percent of physicians with at least one service in the category.** Following the approach in a previous analysis of payment policy impacts (HCFA, 1992), we will examine the presence or absence of specific groups of services in the physician's stream of claims per unit of time. This can also be done for specific services. A particular service or services category may be of interest to the extent that we expect it to be affected by changes in payment policy.

2. **Average number of patients receiving a service in the category, per physician performing such services.** The caseload measure in Section A is here made specific to a type of service.

3. **Number/proportion of beneficiaries who received a service in the category.** In a physician-based sample, the proportion of beneficiaries who received at least one service in the category departs from the customary enrollment-based utilization rate. However, under the random sampling assumption, we expect trends over time to be meaningful for understanding whether the sampled physicians as a group maintain their patients' previous utilization levels or change them. For example, should the apparent concentration of care in a State increase, we still expect to see growth in the number of recipients found in the sample approximately proportional to enrollment growth in the State. If similar growth is not apparent, access may have changed.

4. **Average proportion of patients per physician who received a service in the category.** Within the physician's Medicare caseload, the probability that the physician provides a particular service or class of services may be an outcome of Medicare payment changes. It might also reflect changes in medical technology. This measure contrasts with the ratio formulated in Item 3, and the average of physician-specific levels in Item 2. It does not depend on caseload change, nor on potential relationships between caseload size and practice preferences among physicians. It might affect the proportion of beneficiaries who receive a particular service -- but that matter is better gauged from analyses of the beneficiary population. Previous analyses have suggested large variability in Medicare caseload among physicians (Kowalczyk and Harden, 1991). The average probability measure is an average not weighted by caseload size and will deepen our understanding of the overall pattern of change.

5. **Average number and average adjusted number of services per recipient by service category.** This measure complements the quasi-utilization rate in Item 3. Given that a beneficiary is a recipient of a particular type of service, the average number of services provides an indication of possible volume change independent of change in the probability of receipt. The adjustment can be performed for the sake of comparability with enrollment-based utilization measures.

6. **Average number of services per patient-user by service category.** This measure applies the concept, discussed under Item 4, of averaging individual physician

measures across physicians. As with Item 4, this measure is not weighted by caseload size, so it permits us to examine change apart from the possible effect of change in the distribution of caseloads.

7. **Average number of services per patient by service category.** This measure is not conditional on use of the service. Therefore, unlike the previous, conditional measure, this one incorporates the effect of change in the probability of utilization and change in volume per patient user given the utilization. At the same time, it controls for potential change in the distribution of caseloads. Furthermore, with appropriate validation of physician status, this measure need not be conditional on the physician's continuing as a Medicare provider.

8. **Average number of services per physician performing services in the category.** The count of the performing physician's total number of services, apart from the number of patients served, is one of the indicators of response to service-specific fee schedule changes.

9. **Covered and allowed charges per physician by service category.** The economic importance of a particular service type in a physician's practice can mediate possible effects of the fee schedule on service delivery. Also, when services cannot be consistently classified within a category, counts of expenditures provide an alternative unit of measurement.

10. **Proportion of allowed charges for the service category that are assigned.** Service-specific assignment rates can be tracked, particularly in relation to hypothesized fee schedule impacts.

Approach to analysis

Currently, we are assessing the quality, reliability and validity of the UPIN data for performing physicians. The analyses will be undertaken as soon as we are confident that the data are accurate for a sufficient number of States. The variables outlined above will, we expect, work in concert to provide us with a preliminary understanding of fee schedule impacts from the physician perspective. Initially, analysis for the group of States with the most complete data will be undertaken. We plan to proceed in a stepwise fashion, developing information on impacts across the physician population within each State.

Within a State, breakdowns of measures by specialty and comparisons within and across specialties should provide insights. Descriptors of physicians and patients on the physician sample record will permit examination of the role of factors in addition to specialty. These include age, sex, race and basis of Medicare eligibility of patients found in each year's sample, and the participation status, payment locality, and numbers of practices of physicians.

The assumptions upon which the analysis are based will continually be re-evaluated, and the sampling plan will be reassessed periodically. In particular, we will continue to evaluate the ability of the UPIN on the Medicare claim to provide the necessary link between an individual physician and his or her total services delivery.

PART 3 - Extramural Work

To help in the interpretation of the data being obtained from the NCH/PF, two external data tabulations were initiated. Researchers at the Urban Institute, using Part B Medicare Annual Data file (BMAD) developed for the Nation and for each State, summarized Medicare physician services utilization for the years from 1985 to 1990. The Urban Institute data show annual percent changes in allowed services, allowed charges, submitted charges, and assignments by physician specialty category and by type of service category. These tables are meant to help us understand the degree of variation over time in the period preceding OBRA 1990 in the rates of change we will examine in the States selected for the NCH/PF study. There are several publications from these data which are available from the Urban Institute. (See Health Care Financing Status Report Fiscal Year 1992 edition, page 15.)

The other project, by HKR Incorporated, is analyzing data from 100 percent of the Medicare claims to determine utilization and access patterns among solo practicing physicians and all practices in three States for several years preceding MFS implementation. The first State's data has been tabulated. It suggests that from 1988 to

1989 and again from 1989 to 1990, the number of Medicare patients seen increased, although the number of solo practices declined as did the total number of practices.

Thus, pre-MFS, the shift in the supply of practices did not appear to materially impede Medicare beneficiary utilization. In the first 6 months of any 1 year, 10 percent of the practices served only one or two Medicare patients, while 20 percent served 12 or fewer. On the other hand, the 10 percent of solo practices with highest Medicare patient volume each served over 500 patients per year and the comparable 10 percent of all practices each served over 1,000 Medicare patients. The top 10 percent of all practices account for nearly half of all services provided and for over 60 percent of all allowed charges, and the next 10 percent account for another 15 percent or more of the total dollars. The tables also portray the importance of the physicians and practices who billed Medicare in one year, but not in the next year, relative to all billing for physician services in those years. Data are developed for those physicians who billed Medicare in each of two consecutive years. Data from these States for 1987 and 1988 were used in Chapter 3 of the 1992 report. Much of the 1988 data was also used for Physician customary charges and Medicare payment experience: Study findings, a Special Report in the Winter 1991 Health Care Financing Review.

Additional reports and publications are anticipated from these projects when they have been completed.

DISCUSSION

The overview provided in Part 1 suggests that the implementation of MFS generally resulted in the broad kinds of changes that were expected. Most of the expected kinds of changes materialized. But, some of the changes appear somewhat larger than expected and there were some unexpected changes suggested by the preliminary 1992 figures.

Among types of service, the upward shift in payments toward medical care and consultation services and the downward shifts for surgery, diagnostic X-ray, anesthesia and assistants at surgery services seemingly occurred as anticipated, but the growth for diagnostic laboratory services and radiation therapy was somewhat surprising, as was the marked growth for ambulatory surgical center services payments and durable medical equipment. The latter two could reflect technology shifts rather than consequences of the MFS.

The shifts in payment shares among States suggested in the preliminary 1992 data followed the general pattern expected in the impact analyses presented with the final rules for the 1992 Medicare physician fee schedule. But, fewer States than expected had declines in their shares of national total allowed charges, and some States, most notably California and Maryland, appear to have experienced somewhat larger declines than were expected. As noted previously, further study is needed to determine how much of the change in payment distribution is due to factors other than utilization and access changes.

The large number of physicians whose specialty designations changed during 1992, often to one of several new classifications, complicates comparisons of the changes in payment distributions among various specialties. By using a broad classification of the specialty codes, we confirmed that the proportion of payment for primary care specialties rose substantially as was expected, while shares for most other categories of physicians, most notably that for surgeons, changed little or declined. As was noted in the type of service analyses, payments for suppliers of ambulatory surgicenter facilities, laboratories and medical equipment and supplies grew markedly. These are not MFS services, although these changes might be second order effects of MFS implementation. Further study may be needed to sort out MFS from total Part B impacts.

Also, we emphasize that the claims data for physician services provided during 1992 are not yet complete; changes in various measures of shares of payment will occur when the full year's experience is tabulated. These changes are most likely to occur in the geographic analyses, because there are unavoidable variations by State in billing and processing lags, and because the measure we have used (allowed charges on claims) is one that is affected by the proportion of services which are provided through Medicare arrangements with HMOs and other risk-sharing organizations.

These figures do not shed any light on whether implementation of the fee schedule coincided with changes in the numbers of physicians who provided care to Medicare beneficiaries or whether any systematic change occurred in the size of the Medicare caseload among physicians. To examine these important issues, we have described a study designed to use the new NCH/PF sample of individual physicians' involvement with the Medicare program in 1991 and 1992. Next year, we will report further on this study. We will also relate our findings to the pre-MFS trends tabulated by the Urban Institute and HKR projects.

TABLE 1: Indexed shares of 1992 preliminary national allowed charges relative to the 1991 shares, by type of service

	PRELIMINARY 1992 ALLOWED CHARGES INDEX
TOTAL	100.0
Medical Care	103.3
Surgery	92.1
Consultations	125.2
Diagnostic X-ray	94.7
Diagnostic Laboratory	102.9
Radiation Therapy	106.0
Anesthesia	91.5
Assistants at Surgery	92.1
All Other Covered Services (1)	104.9

SOURCE:

(1) Includes:

Other Medical Services	94.3
Durable Medical Equipment Purchase or Rental	104.7
Ambulatory Surgicenter	150.0
Renal Capitation/Supplies	108.1
Other	120.2

Table 2. Indexes of changes in shares of Medicare allowed charges for total Part B services and for type of service (TOS) codes, by State, and within State, preliminary 1992 to 1991

State	Preliminary 1992 allowed charges indexes*		Type of service change in share of State allowed charges								
(Expected Change)	Total	TOS 1-8	1	2	3	4	5	6	7	8	Other
NATIONAL (0)	100.0	100.0	+	-	+	-	+	+	-	-	+
Alabama (-)	101.9	101.3	+	-	+	-	-	+	-	-	+
Alaska (-)	94.5	96.5	+	-	-	-	-	-	-	-	+
Arizona (-)	100.4	99.3	-	-	+	+	+	+	-	-	+
Arkansas (-)	100.4	99.6	+	-	+	-	-	+	-	-	+
California (-)	94.8	93.0	-	-	+	-	+	+	-	+	+
Colorado (+)	101.4	104.3	+	-	+	-	+	-	-	-	-
Connecticut (-)	100.8	100.7	+	-	+	-	+	+	-	-	+
Delaware (0)	124.5	127.8	-	-	+	-	+	-	-	+	-
Dist. of Columbia (-)	102.3	103.4	+	-	+	-	+	+	-	-	-
Florida (-)	101.0	99.4	-	-	+	-	-	+	-	-	+
Georgia (-)	103.8	103.1	+	-	+	-	+	-	-	-	+
Hawaii (-)	96.2	97.6	+	-	+	-	-	-	-	-	-
Idaho (+)	103.1	103.2	+	-	+	-	-	-	-	-	+
Illinois (-)	100.7	99.4	+	-	+	-	+	+	-	-	+
Indiana (0)	103.9	103.9	+	-	+	-	-	+	-	-	+
Iowa (+)	103.6	103.9	+	-	+	-	-	+	-	-	+
Kansas (-)	103.9	102.3	+	-	+	-	+	0	-	-	+
Kentucky (+)	103.8	103.7	+	-	+	-	+	-	-	-	+
Louisiana (-)	98.6	96.3	+	-	+	-	-	+	-	-	+
Maine (+)	102.9	102.6	+	-	+	-	-	-	-	-	+
Maryland (-)	95.7	94.8	+	-	-	-	-	+	-	-	+
Massachusetts (-)	101.6	100.3	+	-	+	-	-	-	-	-	+
Michigan (+)	100.1	101.3	+	-	+	-	-	-	-	-	-
Minnesota (+)	101.6	101.4	+	-	+	-	-	+	-	-	+
Mississippi (+)	105.9	105.2	+	-	+	-	-	-	-	-	+
Missouri (+)	101.4	100.8	+	-	-	-	+	-	-	-	+
Montana (0)	104.7	100.4	+	-	+	-	+	-	-	-	+
Nebraska (+)	99.8	99.2	+	-	+	-	+	+	-	-	+
Nevada (-)	98.2	98.2	-	-	+	+	+	+	-	-	+
New Hampshire (+)	109.3	107.7	+	-	+	-	-	-	-	-	+
New Jersey (0)	103.2	104.5	+	-	+	-	+	+	-	-	-
New Mexico (-)	96.9	98.6	+	-	+	-	-	-	-	-	+
New York @ (-)	97.6	97.5 @	+	-	+	+	+	+	-	-	-
North Carolina (-)	105.6	105.5	+	-	+	-	+	+	-	-	+
North Dakota (-)	104.6	104.8	-	-	+	-	+	+	-	-	+
Ohio (-)	98.8	98.1	+	-	+	-	-	-	-	-	+
Oklahoma (0)	100.3	100.1	+	-	+	-	+	-	-	-	+
Oregon (0)	102.9	103.3	+	-	-	-	-	+	-	-	+
Pennsylvania (0)	99.4	102.4	+	-	+	-	+	+	-	-	-
Puerto Rico (NE)	96.3	96.0	+	-	+	-	-	-	-	-	+
Rhode Island (+)	101.0	101.2	+	-	+	-	-	-	+	-	+
South Carolina (0)	106.3	108.7	+	-	+	-	-	+	-	-	-
South Dakota (0)	104.6	104.8	-	-	+	-	+	+	-	-	+
Tennessee (-)	101.9	101.1	+	-	+	-	+	-	-	-	+
Texas (-)	100.9	99.5	+	-	+	-	+	+	-	-	+
Utah (+)	106.5	106.1	+	-	+	-	-	-	+	-	+
Vermont (+)	104.6	103.0	+	-	+	-	-	-	-	-	+
Virginia (+)	102.0	108.6	+	-	+	-	-	-	-	-	-
Washington (+)	101.8	99.7	-	-	+	-	-	+	-	-	+
West Virginia (-)	98.6	96.8	+	-	+	-	-	+	+	-	+
Wisconsin (0)	101.5	101.9	+	-	+	-	+	+	-	-	+
Wyoming (+)	111.1	109.1	-	-	+	-	+	+	-	-	+

+ = increase, - = decrease, 0 = no change, NE = Not Estimated

@ For the New York State calculations, type of service 9, "Other medical care", is also included to improve comparability between the 1991 and preliminary 1992 data.

*Preliminary 1992/1991 ratios of allowed charges.

Note: Type of Service (TOS) Codes: 1 = Medical Care; 2 = Surgery; 3 = Consultation; 4 = Diagnostic Xray; 5 = Diagnostic Laboratory; 6 = Radiation Therapy; 7 = Anesthesia; 8 = Assistants at Surgery

NOTES FOR CHAPTER TWO PART ONE, TABLE 2

1. Allowed charges ratios in Table 2 represent where the bills were paid, which in most instances represent the place where the service was rendered. It should be noted, however, that especially for diagnostic laboratory services, this is often not the case. For example, the Delaware carrier accounted for over 2 percent of the national total allowed charges for this service in the preliminary 1992 data, but less than one-third of one percent the national total for any other physician type of service. Excluding laboratory services, the preliminary 1992 allowed charges index for Delaware would be 111.6. The only other State having a significantly larger national share of allowed charges for this type of services versus other types was North Carolina (about 4.1 percent in 1991 and 4.6 percent in preliminary 1992). Excluding laboratory services, the preliminary 1992 allowed charges index for North Carolina would have been 1.025.

2. For some types of service, the Table 2 difference between the 1991 share of total allowed charges for assistance at-surgery in California and for anesthesia services in Utah in large part represent a reclassification (or re-coding) of what in 1991 were considered surgical types of services. The substantial declines in shares of 1992 consultation allowed charges for Maryland, Missouri and Oregon may also represent a re-classification phenomenon.

3. Some geographic mis-codings in the early part of calendar year 1991 by the carrier serving North Dakota and South Dakota resulted in an overstatement of total allowed charges for North Dakota services and a corresponding understatement for South Dakota. For the Table 2 analyses, changes were calculated for these two States combined. In more recent data, each State accounts for about half of the total for the two States combined.

4. In the largest carrier in New York State, a large portion of services which in 1991 were classified type of service 9 "other medical services" were assigned to one of the other 8 classifications featured in these analyses. To improve comparability, type of service 9 allowances were included in the New York State calculations for Table 2 in both periods. Without this adjustment, the preliminary 1992 allowed charges index for New York would have been 1.027.

5. For purposes of the Table 2 analysis, total allowed charges by the carrier serving the Kansas City areas of Kansas and Missouri were allocated to these States in the same proportion for each type of service based upon the total allowed charges reported from this carrier in 1991 and the preliminary 1992 NCH data. The 1992 allocation to Kansas (about 19.9 percent) was somewhat greater than the 1991 proportion (about 18.1 percent). Similarly, the Table 2 type of service data for the States of New Hampshire and Vermont were allocated in the same proportions as total allowed charges reported for each period by the carriers serving these two States. These proportions in 1991 were 67.3 percent for New Hampshire versus 68.4 percent in the preliminary 1992 data.

6. Data for this section were tabulated from the Bess Extracts of NCY/PSP data for 1991 and 1992 as of December 31, 1992.

Table 3: Preliminary 1992 allowed charges indexes compared to 1991 by broad specialty category

PHYSICIAN/SUPPLIER SPECIALTY GROUPING	PRELIMINARY 1992 ALLOWED CHARGES INDEX
MD, Surgeons (1)	96.2
MD, Medical Specialties (2)	100.9
MD, Primary Care Specialties (3)	110.8
MD, Mental Health Specialties (4)	97.3
Other MD Specialties (5)	98.9
Clinic and Unknown Specialties	73.7
Osteopathic and Dental Specialties	45.3
Chiropractors, Optometrists and Podiatrists	100.4
Non-Physician Practitioners (6)	116.0
Facilities and Laboratories (7)	113.6
Suppliers (8)	104.4

NOTES:

(1) Includes general surgery, otolaryngology, dermatology, obstetrics-gynecology, ophthalmology, orthopedic surgery, plastic and reconstructive surgery, colorectal surgery, thoracic surgery, urology, hand surgery, vascular surgery, cardiac surgery, ophthalmology-cataracts, maxillo-facial surgery, and surgical oncology.

(2) Includes allergy and immunology, cardiology, gastroenterology, internal medicine, neurology, physical medicine and rehabilitation, pulmonary disease, pediatrics, geriatrics, nephrology, infectious disease, endocrinology, rheumatology, peripheral vascular disease, critical care intensivists, hematology and oncology, preventive medicine, and medical oncology.

(3) Includes general practice, family practice, and emergency medicine.

(4) Includes psychiatry, addiction medicine, and neuropsychiatry.

(5) Includes anesthesiology, pathology, radiology, nuclear medicine, radiation oncology, codes 71 to 75 (single-specialty group practices) and interventional radiology.

(6) Includes midwives, CRNA and anesthesia assistants, nurse practitioners, audiologists, physical therapists, occupational therapists, psychologists, licensed clinical social workers, certified clinical nurse specialists, and physician assistants.

(7) Includes mammography screening centers, ambulatory surgical centers, independent laboratories, and independent physiological labs.

(8) Includes medical supply companies and individuals, orthotists and prosthetists, ambulance services, public agencies, voluntary agencies, portable x-ray suppliers, suppliers such as drug and department stores, and unknown suppliers.

Table 4. Summary of Measures for Study of MFS Access Impacts Using a Physician Sample

Section A. Measures for total services

1. Average number of patients per physician
2. Number of beneficiaries in the sample and the beneficiaries to physicians ratio.
3. Number of physicians in the sample.
4. Average number of services per patient.
5. Average adjusted number of services per patient.
6. Average number of services per physician.
7. Average number of services per beneficiary.
8. Total covered and allowed charges; average covered and allowed charges per physician.
9. Average percent of allowed charges that are assigned.

Section B. Measures for a service category or specific service (e.g., procedure)

1. Number and percent of physicians with at least one service in the category.
2. Average number of patients receiving a service in the category, per physician performing such services.
3. Number/proportion of beneficiaries who received a service in the category.
4. Average proportion of beneficiaries per physician who received a service in the category.
5. Average number and average adjusted number of services per recipient by service category.
6. Average number of services per patient-user by service category.
7. Average number of services per patient by service category.
8. Average number of services per physician performing services in the category.
9. Covered and allowed charges per physician by service category.
10. Proportion of allowed charges for the service category that are assigned.

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Chapter 3

Beneficiary Access and Utilization: 1992 Preliminary Data

INTRODUCTION

Because the OBRA-1989 physician payment reform provisions represent major changes in the method of paying physicians, both physician behavior and beneficiary access to care may be affected. This chapter presents information on access to care as measured by actual use of services. The data presented here update the baseline beneficiary data presented in the 1992 access report (HCFA, 1992) and provide the first post-MFS data from the beneficiary monitoring files. The data in this chapter include information from the 2 years preceding implementation of the MFS (calendar years 1990 and 1991) and preliminary data for 1992.

In general, the MFS has increased the price of medical services and decreased the price of surgical services. Increased prices for medical services should increase the attractiveness of Medicare beneficiaries to providers of this type of care, thus increasing access to primary care. As noted by Mitchell (1990), increased prices will also increase related out-of-pocket expenses. About one in 10 patients is expected to have a 20 percent or greater increase in out-of-pocket expenses. However, one out of seven black persons and persons living in rural areas will incur this level of increased out-of-pocket expense. This extra out-of-pocket burden could serve as a deterrent to use of services.

Lower prices for surgical services could also work to increase or decrease access to care. If lower prices cause physicians to increase volume, then more beneficiaries will receive these services. But if lower prices make Medicare beneficiaries less attractive clients for physicians, then physicians may shift more of their workload to non-Medicare populations. Price shifts could also have an impact on geographical variations in access, particularly if decreases in prices in urban areas make rural areas more attractive as practice sites for physicians. In short, the impact of MFS on beneficiary access to care cannot be predicted with any assurance. It is, therefore, important to monitor access for unexpected adverse utilization changes.

Particular importance is attached to demographic variation in access to care. Many studies suggest that blacks use less ambulatory medical care than do whites, despite having higher mortality and morbidity rates (HCFA 1990a, HCFA 1990b, JAMA 1990, NCHS 1990). Another population sub-group thought to be particularly vulnerable are the older elderly (those over age 85). Persons in rural areas are also disadvantaged relative to persons in urban areas, with respect to poverty, mortality rates and measures of potential access such as physician to population ratios (OTA 1990, Hewitt, 1989). The analyses in this chapter focus on these population subgroups to begin the process of assessing changes in use patterns over time.

This chapter focuses first on overall trends in allowed charges by type of service. Although the primary intent of this chapter is to examine use of services, the allowed charge data are important for understanding the fiscal importance of various types of services. The second part of the chapter focuses on physician visits. Monitoring physician visits is particularly important for a number of reasons. First, physician visits typically represent an individual's entry into the medical system. To the extent that Medicare beneficiaries have access to and use primary care physician services, they have entered the health care delivery system, and potentially have access to specialists and more advanced, procedural services. Second, evaluative and management services by physicians account for a large proportion of the total Medicare outlays for physician care. In 1990, these services accounted for 38.9 percent of the total allowed charges for physician services included in the MFS. Third, one of the aims of physician payment reform was to shift the weight of payments from the procedural types of care to the evaluation and management types of services.

Trend data are shown in several figures by demographic and geographic population subgroups for ambulatory visits only. That is, hospital visits are not included in the figures[1]. As primary access points, ambulatory visits are presumably the most relevant type of physician visits. Because physician contacts in the inpatient setting are contingent on hospitalization, these visits are probably not as appropriate for measuring access to medical care. Therefore, these visits have been omitted from the trend data. The inclusion of hospital visits does not change the patterns displayed in the figures (not shown).

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[1] Because most consultation visits are in the inpatient setting, Figures 2 through 7 exclude both hospital and consultation visits. Specialist visits are included in the ambulatory category, although some of these visits (particularly pathology and psychiatry) take place in the inpatient setting.

It should be noted that the rates of physician visits described in this chapter may differ from those shown in the later chapters using data from the Medicare Current Beneficiary Survey (MCBS) or from the National Health Interview Survey (NHIS). There are a number of differences in data collection methodologies, including the fact that the surveys report only on non-institutionalized population. The administrative data used in this chapter covers all physician contacts, including those in institutional settings. Other important differences are discussed in chapter 1.

METHODS

Data

Utilization data for this study were generated from two sources. Data for the years 1990 and 1991 were taken from the Part B Medicare Annual Data Beneficiary (BMAD) files. The beneficiary BMAD data provide detailed procedure level information on services received by a 5 percent random sample of Medicare beneficiaries. Whereas the 1990 BMAD file was created from files submitted to HCFA by the carriers, the 1991 BMAD file was created by HCFA's Bureau of Data Management and Strategy directly from National Claims History (NCH) and claims processed by the Common Working File sites. Another difference between the 1990 and 1991 BMAD files is that the 1990 file was updated through March of 1991 while the 1991 BMAD was updated through June of 1992. Therefore, it is possible that some differences in processing or reporting could cause some changes in rates between 1990 and 1991. The data for 1992 come from the Part B beneficiary-based monitoring system and were compiled from the NCH data base. This monitoring system is designed to have complete updates for a full 12 months after the end of each quarter. For example, the January-March, 1992 quarter will be updated through March of 1993. The April-June, 1992 quarter will be updated through June of 1993, and so on. The 1992 data presented in this chapter represent all bills processed through December 1992.

The Part B beneficiary-based monitoring system has been designed to aggregate records for 100 percent of claims on a flow basis as they are received in the HCFA central office. Only Part B claims processed by the Medicare carriers were included in the monitoring system. The reliability of the beneficiary-based monitoring system depends primarily on the uniformity, consistency, and completeness of data submitted from the nine Common Working File sites across all carriers. As this report is being written, substantial effort continues to be made to assure the accuracy of the information being generated from the monitoring system. However, it is important to view these data as preliminary.

Denominators were developed from the Medicare beneficiary denominator files in order to calculate rates of physician visits per 1,000 beneficiaries. Persons belonging to a Health Maintenance Organization (HMO) or a Group Practice Prepayment Plan (GPPP) were excluded because these persons do not receive part B services through fee-for-service claims. Denominator files were available for the years 1990 and 1991. Estimates of 1992 Medicare Part B eligible persons were made by inflating the 1991 population counts by the observed change between 1990 and 1991.

Type of Service Classification System

Procedural coding is based on the Current Procedural Terminology (CPT-4) codes for physician services and other HCFA Common Procedure Coding System (HCPCS) codes for non-physician services such as durable medical equipment and supplies. These codes are used for Part B billing purposes and are much too detailed (there are over 7,000 individual codes) for meaningful analysis of beneficiary use of services. For example, prior to 1993 there were nine different codes for coronary artery bypass graft (CABG) surgery based on the number of grafts and whether the graft is autogenous or non-autogenous. Such distinctions are important for payment purposes or for specific studies of CABG but are too detailed for examining utilization differences across population subgroups. On the other hand, the broad type of service classifications available on the BMAD files (e.g. medical, surgical, and consultation) lack many clinical distinctions that may be important to track in a system designed to monitor beneficiary use of services.

A type of service classification system has been developed by the Urban Institute (Holahan, et al.) and staff in the Office of Research in HCFA. HCPCS codes have been categorized into 77 specific groupings representing all services covered under the Medicare Fee Schedule, with the expectation that variations in treatment can be tracked effectively with these distinctions. For example, including codes used prior to 1992 and codes introduced for 1993, there are 482 separate HCPCS codes representing various types and levels of physician visits and consultations which have been grouped into 6 major types: Office (including outpatient departments), Hospital (inpatient only), Emergency Room, Nursing home and Home, Specialist, and Consultations. A detailed description of this service classification system is shown in Appendix A[2].

Geographic Grouping

The urban/rural classification used in this chapter is the Human Resource Profile County (HRPC) coding system established by the Office of Management and Budget based on work conducted at the Department of Agriculture. It classifies Metropolitan Statistical Areas (MSA) into large core, fringe, medium, and small MSAs. The non MSA areas are divided into urban, lesser urban, and thinly populated areas. Each of these non metropolitan areas is further divided into areas adjacent to and not adjacent to metropolitan areas. In their overview of urban/rural designations, the OTA recommended this typology as perhaps the best for assessing issues of access to medical care (OTA, 1990). This typology is described in Appendix B.

An additional geographic grouping of States was developed based on the expected impact of the MFS. Because the MFS replaced the carrier specific rates with a national system, the average change in price for physician services will vary considerably across areas of the country. The expected impact of these price changes by State was published in the November 25, 1991, Federal Register Vol. 56(227). Accordingly, State "ex ante impact" areas were defined based on the estimated impact of the MFS. States were grouped according to the overall estimated change in Medicare physician prices by 1996 as follows: (1) Increase (+4 percent to +12 percent); (2) No Change (+3 percent to -3 percent); (3) Moderate Decrease (-4 percent to -9 percent); and (4) Large Decrease (-10 percent to -20 percent). A listing of the States and their position in the ex ante classification is presented in Appendix C.

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[2] The entire classification system includes all part B services processed by Medicare carriers, including durable medical equipment, laboratory tests, drugs and ambulance services. There are 104 categories in all. However, only the 77 which cover the Medicare Fee Schedule are covered in this chapter.

RESULTS

Allowed Charges

In 1990, allowed charges for physician services covered under the MFS totaled $29.9 billion (table 1). This increased by 10.4 percent to $33.0 billion in 1991. At the time of the writing of this report, 1992 data were not complete enough to estimate the change in allowed charges for 1992. However, independent estimates from HCFA's Office of the Actuary and the Physician Payment Review Commission suggest that the rate of increase in allowed charges has decreased considerably. Although the 1992 data are incomplete, it is of interest to examine the distribution of charges by aggregate types of service. This is shown in table 1 and displayed graphically by quarter in figure 1. The share of physician allowed charges accounted for by imaging in 1990 was 14.7 percent and by 1992 had declined slightly to 14.2 percent. Within imaging, standard imaging decreased from 6.3 percent of all allowed charges in 1990 to 5.7 percent in 1992, while sonagraphy increased from 3.3 percent to 3.5 percent. There has been a decided shift in charges from the procedure categories to the medical visit category. In 1990, procedures accounted for 46.5 percent of allowed charges while medical visits accounted for 38.9 percent. In 1991, the share of Medicare allowed charges accounted for by medical visits increased to 40.2 percent and to 43.7 percent in 1992, with corresponding decreases in the share accounted for by procedures. Within the medical visit category, proportions increased for office visits (13.5 percent in 1990 and 16.0 percent in 1992), specialists (5.7 percent and 6.6 percent, respectively), and consultations (3.7 percent and 4.8 percent, respectively. Almost all procedure categories decreased as a percent of total allowed charges, with the exception of minor procedures. These patterns are described in more detail below.

As Figure 1 shows, these changes were not gradual but occurred abruptly in the first quarter of 1991 and 1992, thus reflecting payment changes. It thus appears that in 1992 the MFS was associated with both a slowing of the rate of increase in physician expenditures and has been successful in shifting payments toward the management and evaluation type of physician care.

Table 2 shows the distribution of allowed charges for visits and consultations for the years 1990 through 1992. The share of allowed charges accounted for by office visits increased slightly from 1990 to 1992 (34.6 percent and 36.5 percent, respectively). The share accounted for by inpatient hospital visits declined from 32.0 percent in 1990 to 27.7 percent in 1992. However, part of this decline was due to a payment policy change in 1992 which shifted a large number of services from the hospital visit and critical care areas to the category of consultations. Specialist services also increased as a percent of the total, largely due to increases in psychiatry services[3]. The one specialist category showing a noticeable decline in proportion was ophthalmology.

Table 3 presents allowed charges for procedures. The largest procedural category is eye procedures, which accounted for 18.2 percent of allowed charges in 1990, increasing to 19.4 percent in 1991, and then 19.3 percent in 1992. Other categories that increased as a percent of the total included minor procedures (8.5 percent in 1990 and 10.2 percent in 1992) and endoscopy (10.4 percent in 1990 and 11.1 percent in 1992). Corresponding declines were seen in general major procedures (12.3 percent in 1990 and 10.6 percent in 1992) and tests (7.2 percent in 1990 and 4.7 percent in 1992). The decline in allowed charges for tests was due to a change in the payment for electrocardiograms. Beginning in 1992, Medicare allowed separate payment for only the technical component for these procedures. The professional component cannot be billed separately but is included into the relative value for visit codes.

Allowed charges for imaging services are shown in table 4. Standard imaging declined as a percent of the total, from 43.0 percent in 1990 to 40.3 percent in 1992. Advanced imaging remained a fairly constant percentage of the total. Sonography increased from 22.3 percent of allowed charges for imaging in 1990 to 24.5 percent in 1992, primarily due to increases in echography of the heart.

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[3] The preliminary 1992 allowed charges index for physicians with mental health specialties shown in Chapter 2 did not increase. However, there was an increase in billing of psychiatry codes among physicians not classified as mental health specialists.

Physician Visits

Table 5 shows baseline data on physician visits by Medicare beneficiaries 65 years of age and older in 1990 by age, sex and race. Total physician visits are divided into six categories; office, inpatient hospital, emergency room, home or nursing home, specialists, and consultations[4]. In 1990, aged Medicare beneficiaries had 10,572 physician visits per 1,000 persons. Just under one-half (46 percent) were office visits. Another 30 percent were hospital visits. Three percent were emergency room visits and 5 percent were nursing home or home visits[5]. The remaining physician visits were for specialists[6] (13 percent) and consultations (4 percent).

The relative use of these physician services (shown in the lower half of table 5) was highly related to age, with persons over age 85 having roughly twice as many physician contacts (1.99) as persons ages 65 to 74. The place/type of service varied considerably by age. Persons ages 85 and over had only moderately higher rates of use for physician office visits and specialists (1.19) than did persons ages 65 to 74. On the other hand, physician visits in the hospital were 2.92 times as great and home/nursing home visits were 19.13 times as great for persons ages 85 and over as for persons ages 65 to 74.

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[4] Technically, services performed by a chiropractor are also considered medical visits but have not been included in this analysis. Visits to a chiropractor account for less than 3 percent of all medical visit services.

[5] The vast majority (90 percent) of the home/nursing home visit category is composed of nursing home visits.

[6] Specialist physician care is largely composed of services in the categories of ophthalmology (47 percent), pathology (25 percent), and psychiatry (18 percent).

Women had a slightly higher overall rate of physician use (1.08) than did men. Use rates were higher for women for office, emergency room, and specialist visits. Men had higher use rates for hospital and consultation visits. Women also had twice as many home/nursing home visits, reflecting the older age distribution and higher rate of nursing home institutionalization among women.

Overall, black persons had 2 percent fewer physician visits than did white persons. Black persons had 12 percent fewer office visits and 27 percent fewer specialist visits than did white persons. Black persons had 21 percent more inpatient hospital visits and 37 percent more emergency room visits than did white persons. The higher use of emergency rooms is consistent with other work showing that more blacks persons use emergency rooms as a usual source of care compared with white persons. However, despite this higher relative rate of use, emergency room visits only accounted for 4 percent of all physician visits for black persons, compared to 3 percent for white persons.

Table 6 shows baseline use of physician visits in 1990 by geographic areas. All aged, disabled and end-stage renal disease (ESRD) beneficiaries are included in these calculations. Nationwide there were 10,390 physician visits per 1,000 Medicare beneficiaries. The Midwest, South, and West regions of the country had use rates that were 3 to 4 percent higher than in the Northeast. There was some regional variation by category of physician visit. For example, the West had much higher rates of physician office visits than in the other three Census regions. On the other hand, inpatient hospital visits in the West were 20 percent lower than in the other three regions, consistent with the lower hospitalization rates and shorter length of stay in that region. Use of nursing home/home visits was also notably lower in both the South and the West than in the other two regions.

Use rates were highest in the large core and large fringe areas of metropolitan areas (11,868 and 11,359 per 1,000). Medium sized metropolitan areas had total physician use rates 13 percent lower than large core areas. Small metropolitan areas and all non-metropolitan areas were about 20 percent lower than the large core metropolitan areas. With the exception of urban areas adjacent to metropolitan areas and thinly populated areas not adjacent to metropolitan areas, there was very little difference in emergency room use across urban/rural areas. Similarly, office visits were only 12 to 14 percent lower in the non metropolitan areas compared to the large core metropolitan areas. The greatest urban/rural differential was found for specialist and consultation services. Use of specialist services was 26 to 36 percent lower and consultation services were 40 to 48 percent lower in the non metropolitan areas compared to the large core metropolitan areas.

The differences in use of physician care between urban and rural areas are noticeable but not nearly so great as the differences in physician to population ratios (see Chapter 5). Thus, while physician to population ratios are indicative of general patterns of access to care, actual use of services is much less varied. This is due to the fact that beneficiaries can, and do, travel to receive care.

As discussed earlier, States were categorized according to the estimated physician payment reform impact ("ex ante impact") on physician prices. Those States in which physician expenditures are expected to increase or where there is essentially no change had the lowest total physician use rates in 1990. States expected to have a moderate or large decrease in prices had 10 percent and 14 percent higher physician use rates, respectively than did the States with projected increases.

Three counties were added to the monitoring system based on higher than average expected physician payment reform impacts. In 1990, all three had much higher than average total physician use rates. Physician visit use rates were 60 percent higher in Dade County, Florida, 44 percent higher in Los Angeles, California, and 26 percent higher in Manhattan, New York, than the national average.

Trends

The 1992 report to Congress (HCFA, 1992) showed that physician visits were increasing in virtually all categories. From 1986 to 1990, the number of physician office visits per 1,000 persons increased by 17.3 percent (about a 4.1 percent annual rate of increase). Inpatient hospital visits increased by 8.5 percent, emergency room visits increased by 25.5 percent, nursing home/home visits increased by 10.4 percent, specialist visits increased by 44.5 percent, and consultations increased by 6.5 percent.

This upward trend in utilization continued in 1991 (data not shown). Total physician visits per 1,000 increased from 10,390 in 1990 to 11,254 in 1991, an increase of 8.3 percent. The increased visit rates ranged from 3.7 percent for hospital visits to 13.3 percent for specialist visits. It is not yet certain what changes in physician visit rates will be for 1992. PPRC, using data from the first 6 months of 1992, reports modest increases of 2.0 percent in physician office visits and 0.9 percent for inpatient hospital visits. Thus, it would appear that the increase in visits in the first year of the Medicare Fee schedule may be much less than the historical trend through 1991.

In order to track the relative use rates by demographic and geographic categories, quarterly use rates have been calculated for each of the 11 quarters from 1990 through the 3rd quarter of 1992. Of all services incurred during the 4th quarter of 1992, only about one-half are estimated to have been posted to the NCH by the end of December, 1992. Because of the resulting data distortions, the partial data for the 4th quarter were not included in the trend lines. It should be noted that the update period for the other 3 quarters of 1992 are also shorter than for 1990 and 1991. These years are updated through March and June of the following year, respectively. It is possible that the incompleteness is associated with demographic characteristics. Therefore, the trends illustrated in the following figures may be subject to change as the monitoring system matures and each quarter receives a full update.

Figure 2 shows the relative use rate of black aged Medicare beneficiaries compared to white aged Medicare beneficiaries for ambulatory physician visits. Throughout the 11 quarters shown in this figure the ratio of ambulatory physician visits for black persons compared to white persons was about 0.86 to 0.89. Averaged across this time period, there is a very slight downward trend in this ratio, amounting to about a 1.5 percent decline for black persons compared to white persons. Due to (a) the reporting differences between 1990 versions of the BMAD files, (b) the fact that the quarterly fluctuations are much larger than the trend, (c) the influence of 4th quarter shortfalls, and (d) the incompleteness of the 1992 data, such a small shift cannot be considered reliable at this time.

Relative use rates by age are shown in Figure 3. Relative to persons ages 65 to 74, persons ages 75 to 84 have about 28 to 30 percent more ambulatory physician visits and persons ages 85 and over have about 60 to 70 percent more visits. These relative use ratios were fairly consistent throughout the 1990 to 1992 time period, with the exception of a one time increase in the first quarter of 1992. There is no obvious reason for this aberration in the otherwise stable age relationship. It underscores the difficulty in assessing trends in relative utilization rates.

Figures 4 through 7 show trends in relative use of ambulatory physician visits by various geographical categories. Unlike the rates for aged beneficiaries in Figures 2 and 3, these rates are based on the entire Medicare population, including the disabled and persons with ESRD. Metropolitan areas (i.e., counties within MSAs are compared with non-metropolitan areas in Figure 4. Throughout the 1990 through 1992 time period, the relative use remained the same for non-metropolitan areas at about 88 percent of the metropolitan areas. A more detailed comparison is shown in Figure 5. The base comparison areas are large core areas within metropolitan areas, where physician visit rates are greatest (see table 6). All other areas within metropolitan areas have use rates which are about 90 percent as great as the large core areas. The non-metropolitan areas are split into areas adjacent and not adjacent to the metropolitan areas. As described earlier, adjacency to metropolitan areas does not greatly affect use of physician visits. That is, both types of areas have rates which are about 80 to 82 percent as great as rates in the large core, metropolitan areas. There was little change in these relative rates during the 11 quarters from 1990 through the third quarter of 1992.

Relative use rates by physician payment reform ex ante impact areas are shown in Figure 6. States in which physician payments are expected to increase are used as the comparison group. States categorized as no change (within 3 percent plus or minus) have physician visit use rates about 3 to 4 percent lower than States with expected increases. States expected to have a moderate decrease in physician payments had rates very nearly the same as the increase States and this also remained relatively stable through 1992. The highest use rates were in the States where payments are expected to have the largest decreases, about 10 to 15 percent higher than increase States in 1990 and 1991. All these relative use ratios showed quarter to quarter fluctuation, but there was no overall trend.

No trend was found for the three counties selected for special observation (Figure 7). As described above, all three counties had higher than average physician visit rates in 1990, ranging from 25 to 35 percent higher than the national average in Manhattan to 60 percent higher in Dade County, Florida. Physician use rates in these counties remained relatively constant, compared to the national average, through the 3rd quarter of 1992.

DISCUSSION

Although the data assembled for this chapter are too incomplete to assess absolute changes in allowed charges or volume of services for 1992, preliminary analyses from the 1993 MVPS report to Congress and the Physician Payment Review Commission suggest that the increase in physician expenditures for 1992 will be considerably below the historical trend. From data presented in this chapter and in Chapter two, there has been, in 1992, a significant shift in the relative share of expenditures from the procedural categories of physician services to the management and evaluation categories. Within the major categories of evaluation and management services, procedures, and imaging, most subcategories exhibited little change in share of allowed charges. Small or moderate declines occurred for hospital and ophthalmology visits and for general major procedures. Small increases in share occurred for psychiatry and consultation visits, minor procedures, endoscopy, and echography of the heart.

This year's report includes the first data from the beneficiary physician monitoring system, which was implemented in 1992. It covers 100 percent of the carrier submitted data beginning on January 1, 1992 and continuing through December 31, 1992. As such it has provided important preliminary data on Medicare beneficiary experience under the MFS. In future months, as the quarters receive full follow-up, the stability and completeness of the data should become apparent and its utility for tracking changes in utilization will improve.

In terms of access to physician care as measured by use of services per 1,000 persons, the early 1992 data suggest that little has changed. Geographic differences in use rates have remained fairly constant during the first three quarters of 1992. Similarly, there is little or no meaningful change in the use of services by either age or racial groupings.

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Table 1. Medicare Allowed Charges for Physician Services Covered by the Medicare Fee Schedule by Major Type of Service Category: 1990 - 1992

Service Category	1990	1991	1992 *	1990	1991	1992
	(in millions)			Percent distribution		
Grand Total	$29,922	$33,038	$28,519	100.0	100.0	100.0
Visits and Consultations	11,631	13,276	12,468	38.9	40.2	43.7
Procedures	13,902	15,132	11,988	46.5	45.8	42.0
Imaging	4,389	4,629	4,063	14.7	14.0	14.2

Sources: 5 percent BMAD for 1990 and 1991: 1992 Monitoring System (Updated through December 1992)

* 1992 Data are incomplete

Table 2. Medicare Allowed Charges for Physician Services Covered by the Medicare Fee Schedule
Visits and Consultations: 1990 - 1992

Type of Visit	1990	1991	1992 *	1990	1991	1992
	(in millions)			Percent distribution		
Total	$11,631	$13,276	$12,468	100.0	100.0	100.0
Office Visits	4,027	4,706	4,553	34.6	35.5	36.5
New	471	550	516	4.1	4.1	4.1
Established	3,556	4,157	4,037	30.6	31.3	32.4
Inpatient Hospital Visits	3,725	4,007	3,459	32.0	30.2	27.7
Initial	628	680	601	5.4	5.1	4.8
Subsequent	2,549	2,721	2,626	21.9	20.5	21.1
Critical Care	548	606	232	4.7	4.6	1.9
Emergency Room	483	610	547	4.2	4.6	4.4
Home/Nursing Home	419	493	451	3.6	3.7	3.6
Home	56	60	43	0.5	0.5	0.3
Nursing Home	363	433	408	3.1	3.3	3.3
Specialists	1,711	2,026	1,894	14.7	15.3	15.2
Pathology	490	565	545	4.2	4.3	4.4
Psychiatry	348	498	520	3.0	3.7	4.2
Ophthalmology	821	899	774	7.1	6.8	6.2
Other	52	65	56	0.4	0.5	0.4
Consultation	1,094	1,242	1,381	9.4	9.4	11.1
Chiropractic	173	191	183	1.5	1.4	1.5

Sources: 5 percent BMAD for 1990 and 1991: 1992 Monitoring System (Updated through December 1992)

* 1992 Data are incomplete

Table 3. Medicare Allowed Charges for Physician Services Covered by the Medicare Fee Schedule Procedures: 1990 - 1992

Procedure	1990	1991	1992 *	1990	1991	1992
		(in millions)			Percent distribution	
Total	$13,902	$15,132	$11,988	100.0	100.0	100.0
Major Procedure: General	1,704	1,690	1,268	12.3	11.2	10.6
Breast	70	71	50	0.5	0.5	0.4
Colectomy	182	172	126	1.3	1.1	1.1
Cholecystectomy	142	90	54	1.0	0.6	0.4
TURP	233	221	145	1.7	1.5	1.2
Hysterectomy	45	51	45	0.3	0.3	0.4
Disk Surgery	151	170	139	1.1	1.1	1.2
Other	881	914	709	6.3	6.0	5.9
Major Procedure: Cardiovascular	888	934	734	6.4	6.2	6.1
CABG	569	549	427	4.1	3.6	3.6
Aneurysm	80	76	55	0.6	0.5	0.5
Thromboendarerectomy	76	88	72	0.5	0.6	0.6
PTCA	163	220	180	1.2	1.5	1.5
Pacemaker	130	123	93	0.9	0.8	0.8
Other	793	833	674	5.7	5.5	5.6
Major Procedure: Orthopedic	1,009	1,069	859	7.3	7.1	7.2
Hip Fracture Repair	239	245	192	1.7	1.6	1.6
Hip Replacement	234	239	176	1.7	1.6	1.5
Knee Revision	242	271	234	1.7	1.8	2.0
Other	295	314	256	2.1	2.1	2.1
Major Procedure: Eye						
Corneal Transplant	43	45	32	0.3	0.3	0.3
Cat Rem/Lens Insert	1,579	1,813	1,467	11.4	12.0	12.2
Retinal Detachment	66	72	52	0.5	0.5	0.4
Treatment Retinal Lesions	172	188	132	1.2	1.2	1.1
Other	667	812	630	4.8	5.4	5.3

Table 3 Cont. Medicare Allowed Charges for Phyaician Services Covered by the Medicare Fee Schedule
Procedures: 1990 – 1992

Procedure	1990	1991	1992 *	1990	1991	1992
	(in millions)			Percent distribution		
Ambulatory Procedures:	1,164	1,286	987	8.4	8.5	8.2
Skin	446	501	391	3.2	3.3	3.3
Musculoskeletal	178	199	147	1.3	1.3	1.2
Hernia Repair	81	77	57	0.6	0.5	0.5
Lithotripsy	22	22	17	0.2	0.1	0.1
Other	436	487	375	3.1	3.2	3.1
Minor Procedures:	1,181	1,348	1,220	8.5	8.9	10.2
Skin	586	648	606	4.2	4.3	5.1
Musculoskeletal	178	198	166	1.3	1.3	1.4
Other	416	502	447	3.0	3.3	3.7
Oncology	618	719	686	4.4	4.8	5.7
Radiation Therapy	526	600	584	3.8	4.0	4.9
Other	92	119	102	0.7	0.8	0.9
Endoscopy	1,442	1,657	1,334	10.4	11.0	11.1
Arthroscopy	67	79	66	0.5	0.5	0.5
Upper GI Endoscopy	382	442	350	2.8	2.9	2.9
Signoidoscopy	120	121	89	0.9	0.8	0.7
Colonoscopy	468	497	402	3.4	3.3	3.4
Cystoscopy	238	260	212	1.7	1.7	1.8
Broncoscopy	86	94	69	0.6	0.6	0.6
Laparoscopic Cholecystectomy	4	74	65	0.0	0.5	0.5
Laryngoscopy	38	42	34	0.3	0.3	0.3
Other	40	48	46	0.3	0.3	0.4
Dialysis	143	164	133	1.0	1.1	1.1
Tests	1,001	988	563	7.2	6.5	4.7
Other	48	54	56	0.3	0.4	0.5
Electrocardiograms	618	590	206	4.4	3.9	1.7
Cardiov Stress Tests	144	159	138	1.0	1.1	1.2
EKG Monitoring	192	185	163	1.4	1.2	1.4
Anesthesia	1,301	1,392	1,124	9.4	9.2	9.4

Sources: 5 percent BMAD for 1990 and 1991: 1992 Beneficiary Monitoring System (Updated through December 19

* 1992 Data are incomplete

Table 4. Medicare Allowed Charges for Physician Services Covered by the Medicare Fee Schedule
Imaging: 1990 - 1992

Type of Imaging	1990	1991	1992 *	1990	1991	1992
	(in millions)			Percent distribution		
Total	$4,389	$4,629	$4,063	100.0	100.0	100.0
Standard Imaging	1,889	1,937	1,636	43.0	41.8	40.3
Chest	583	578	452	13.3	12.5	11.1
Musculoskeletal	446	432	353	10.2	9.3	8.7
Breast	169	193	160	3.9	4.2	3.9
GI Tract	190	177	137	4.3	3.8	3.4
Nuclear Medicine	286	331	349	6.5	7.1	8.6
Other	216	226	184	4.9	4.9	4.5
Advanced Imaging	868	893	816	19.8	19.3	20.1
Cat Scan - Head	202	194	150	4.6	4.2	3.7
Cat Scan - Other	411	426	362	9.4	9.2	8.9
MRI - Brain	112	111	141	2.5	2.4	3.5
MRI - Other	143	161	164	3.3	3.5	4.0
Sonography	979	1,069	995	22.3	23.1	24.5
Echo-Eye	103	97	93	2.4	2.1	2.3
Echo-Abdomen/Pelvis	191	200	169	4.4	4.3	4.2
Echo-Heart	496	569	537	11.3	12.3	13.2
Echo-Carotid Artery	127	139	114	2.9	3.0	2.8
Prostate	16	17	20	0.4	0.4	0.5
Other	46	49	62	1.0	1.1	1.5
Imaging/Procedure	653	730	616	14.9	15.8	15.2
Proc, Incl Card Cath	454	528	471	10.3	11.4	11.6
Proc Other	199	202	145	4.5	4.4	3.6

Sources 5 percent BMAD for 1990 and 1991; 1992 Monitoring System (Updated through December 1992)

* 1992 Data are incomplete

Table 5. Total Physician Visits per 1,000 Aged Medicare Beneficiaries by Type of Visits, by Age, Sex and Race: 1990

Age, Sex, and Race	Total	Office	Inpatient Hospital	Emergency	Home/NH	Specialist	Consultation
	Visit per 1,000 beneficiaries						
All Persons	10,572	4,815	3,177	331	495	1,338	415
65-74 yrs.	8,607	4,425	2,234	251	133	1,232	331
75-84 yrs.	12,187	5,361	3,899	383	572	1,485	487
85+ yrs.	17,150	5,271	6,530	659	2,543	1,467	679
Male	10,099	4,467	3,338	320	308	1,220	445
Female	10,881	5,044	3,071	339	618	1,415	394
White	10,978	5,042	3,239	334	515	1,420	428
Black	10,781	4,432	3,905	459	500	1,040	447
	Relative rate of physician visits per 1,000 beneficiaries						
65-74 yrs.	1.00	1.00	1.00	1.00	1.00	1.00	1.00
75-84 yrs.	1.42	1.21	1.74	1.53	4.30	1.20	1.47
85+ yrs.	1.99	1.19	2.92	2.63	19.13	1.19	2.05
Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Female	1.08	1.13	0.92	1.06	2.00	1.16	0.89
White	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Black	0.98	0.88	1.21	1.37	0.97	0.73	1.04

Sources: 5 percent BMAD for 1990 and 1991: 1992 Monitoring System (Updated through December 1992)

Table 6. Total Physician Visits per 1,000 Medicare Beneficiaries by Type of Visits and Geographic Area

Geographic Area	Total	Office	Inpatient Hospital	Emergency	Home/NH	Specialist	Consultation
	Visits per 1,000 beneficiaries						
U.S. Total	10,390	4,628	3,158	347	468	1,377	410
Census Region							
Northeast	10,244	4,296	3,290	337	556	1,298	468
North Central	10,695	4,721	3,228	378	562	1,404	402
South	10,524	4,597	3,352	361	368	1,456	389
West	10,607	5,402	2,645	314	453	1,388	405
Metropolitan/Non-Metropolitan							
Metropolitan	10,960	4,798	3,373	350	492	1,486	461
Large Core	11,868	5,065	3,686	347	566	1,661	543
Large Fringe	11,359	4,907	3,526	338	557	1,519	511
Medium	10,334	4,614	3,190	363	431	1,342	394
Small	9,555	4,396	2,788	346	354	1,335	335
Non-Metropoitan	9,375	4,389	2,744	354	427	1,161	300
Urban Adjacent	9,505	4,404	2,746	378	428	1,222	326
Urban Non adjacent	9,467	4,399	2,808	355	348	1,237	320
Less Urban Adjacent	9,356	4,374	2,759	355	430	1,141	297
Less Urban Non Adjacent	9,246	4,375	2,686	353	437	1,113	281
Thinly Pop Adjacent	9,323	4,377	2,776	340	474	1,062	293
Thinly Pop Non Adjacent	9,454	4,444	2,758	307	487	1,176	281
PPR Ex Ante Impact							
Increase	9,777	4,511	2,764	360	440	1,336	367
No Change	9,757	4,344	2,932	381	455	1,274	371
Moderate Decrease	10,772	4,589	3,572	353	526	1,297	436
Large Decrease	11,191	5,229	3,084	315	428	1,685	450
Manhattan, N.Y.	13,112	5,750	3,313	299	647	2,615	487
Dade County, Fla	16,623	7,342	4,777	336	621	2,732	816
Los Angeles, Ca	14,949	7,186	4,158	319	722	1,809	754

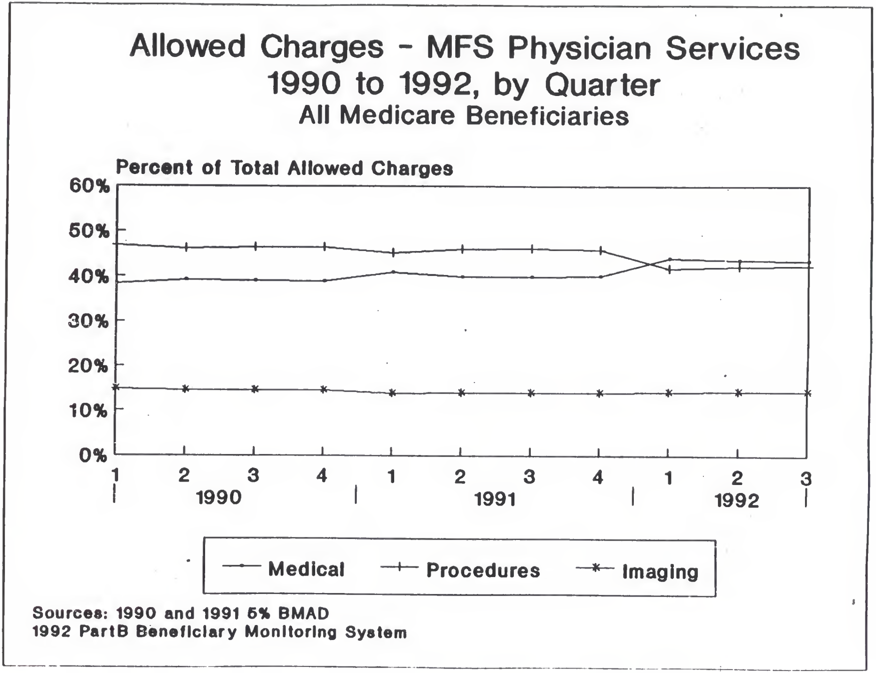
Table 6 (Cont.) Total Physician Visits per 1,000 Medicare Beneficiaries by Type of Visit, and Geographic Area

Geographic Area	Total	Office	Inpatient Hospital	Emergency	Home/NH	Specialist	Consultation
	Relative rate of physician visits per 1,000 beneficiaries						
Census Region							
Northeast	1.00	1.00	1.00	1.00	1.00	1.00	1.00
North Central	1.04	1.10	0.98	1.12	1.01	1.08	0.86
South	1.03	1.07	1.02	1.07	0.66	1.12	0.83
West	1.04	1.26	0.80	0.93	0.81	1.07	0.87
Metropolitan/Non-Metropolitan							
Metropolitan	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Large Core	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Large Fringe	0.96	0.97	0.96	0.97	0.99	0.91	0.94
Medium	0.87	0.91	0.87	1.04	0.76	0.81	0.72
Small	0.81	0.87	0.76	1.00	0.63	0.80	0.62
Non-Metropoitan	0.86	0.91	0.81	1.01	0.87	0.78	0.65
Urban Adjacent	0.80	0.87	0.74	1.09	0.76	0.74	0.60
Urban Non adjacent	0.80	0.87	0.76	1.02	0.61	0.74	0.59
Less Urban Adjacent	0.79	0.86	0.75	1.02	0.76	0.69	0.55
Less Urban Non Adjacent	0.78	0.86	0.73	1.02	0.77	0.67	0.52
Thinly Pop Adjacent	0.79	0.86	0.75	0.98	0.84	0.64	0.54
Thinly Pop Non Adjacent	0.80	0.88	0.75	0.88	0.86	0.71	0.52
PPR Ex Ante Impact							
Increase	1.00	1.00	1.00	1.00	1.00	1.00	1.00
No Change	1.00	0.96	1.06	1.06	1.04	0.95	1.01
Moderate Decrease	1.10	1.02	1.29	0.98	1.20	0.97	1.19
Large Decrease	1.14	1.16	1.12	0.88	0.97	1.26	1.22
Manhattan, N.Y.	1.26	1.24	1.05	0.86	1.38	1.90	1.19
Dade County, Fla.	1.60	1.59	1.51	0.97	1.32	1.98	1.99
Los Angeles, Ca.	1.44	1.55	1.32	0.92	1.54	1.31	1.84

Sources: 5 percent BMAD for 1990 and 1991: 1992 Monitoring System (Updated through December 1992)

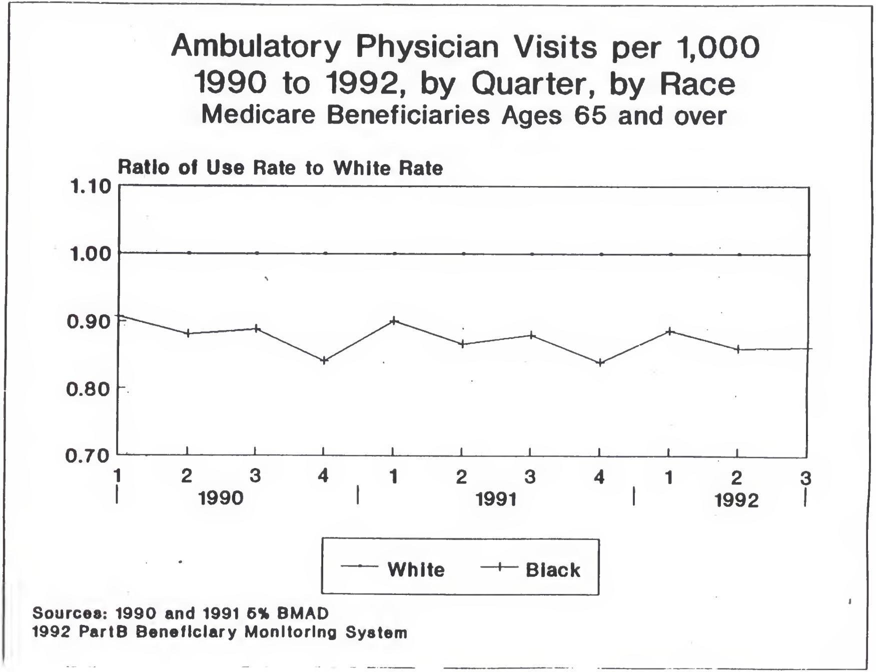
Includes aged, disabled, and ESRD beneficiaries.

Figure 1



Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

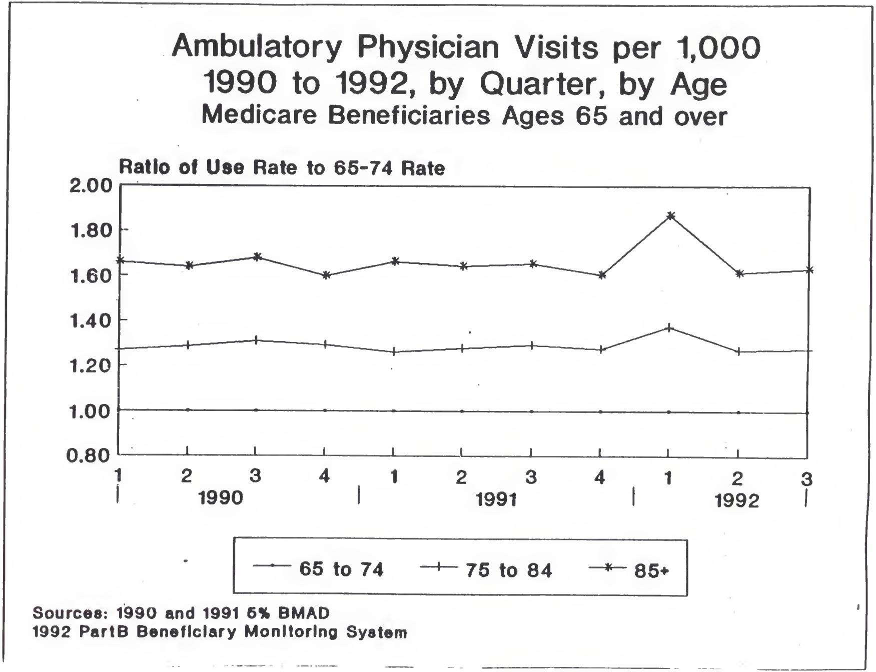
Figure 2



Ambulatory Physician Visits per 1,000
1990 to 1992, by Quarter, by Race
Medicare Beneficiaries Ages 65 and over

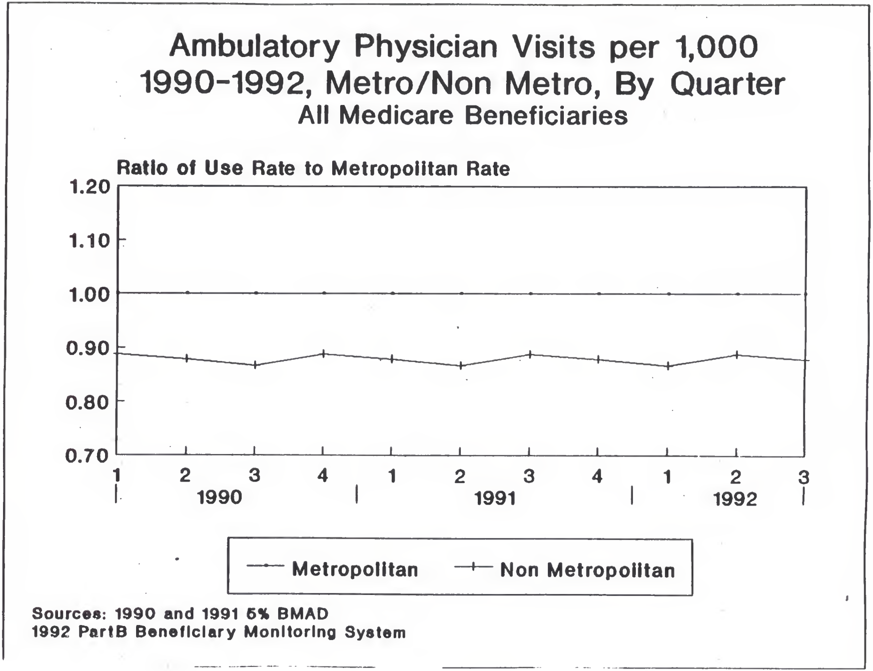
Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

Figure 3



Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

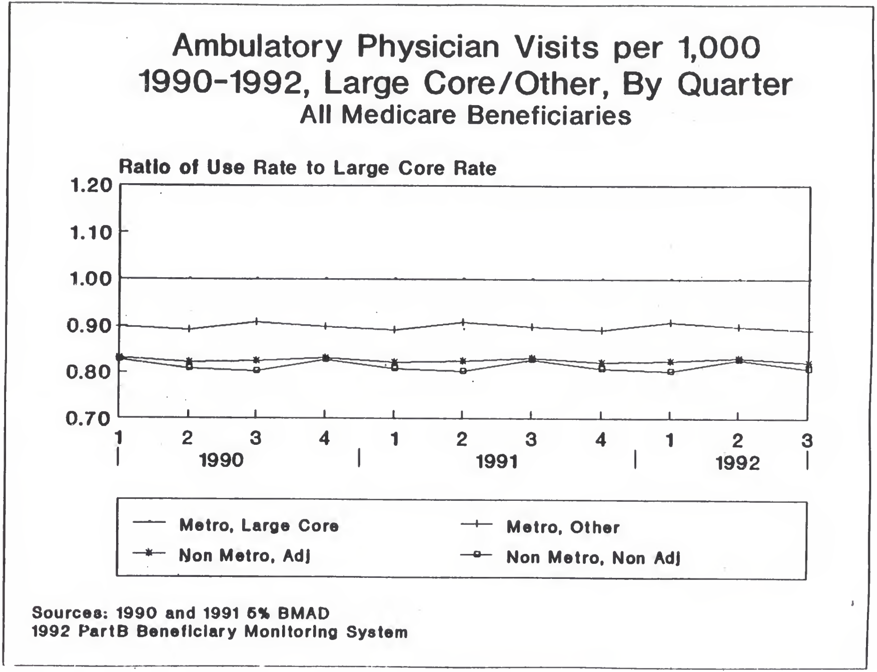
Figure 4



Ambulatory Physician Visits per 1,000
1990-1992, Metro/Non Metro, By Quarter
All Medicare Beneficiaries

Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

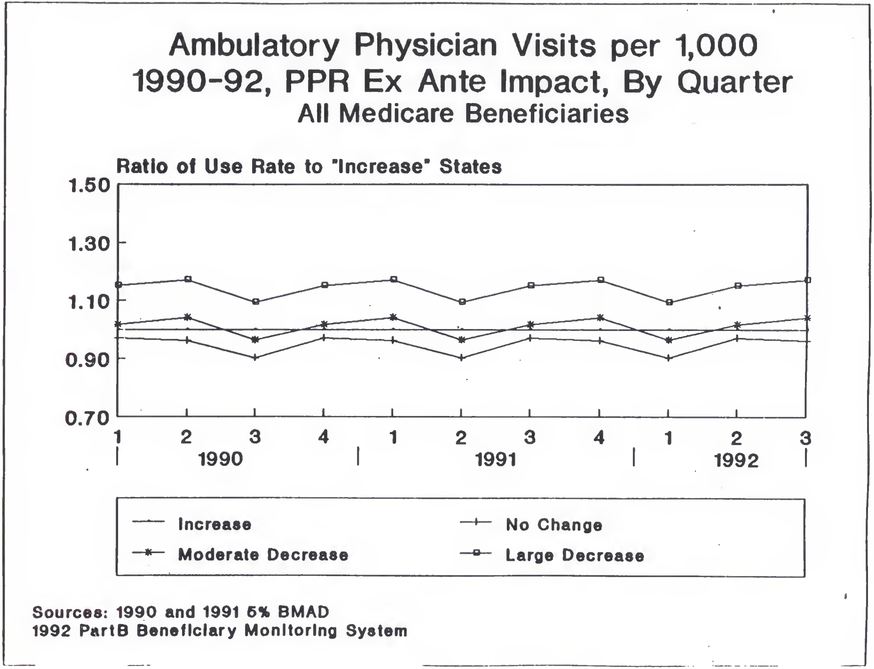
Figure 5



Ambulatory Physician Visits per 1,000
1990-1992, Large Core/Other, By Quarter
All Medicare Beneficiaries

Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

Figure 6

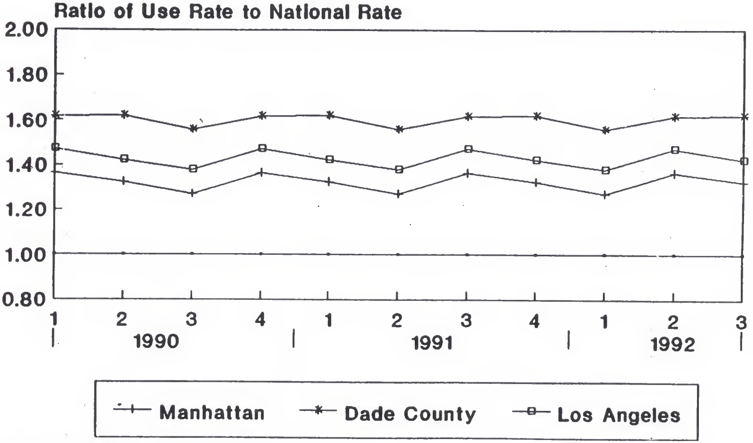


Ambulatory Physician Visits per 1,000
1990-92, PPR Ex Ante Impact, By Quarter
All Medicare Beneficiaries

Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

Figure 7

Ambulatory Physician Visits per 1,000
1990-92, by County, By Quarter
All Medicare Beneficiaries



Sources: 1990 and 1991 5% BMAD
1992 PartB Beneficiary Monitoring System

Chapter 4

Access to Inpatient Hospital Procedures, 1986-1990

INTRODUCTION

One of the intents of the MFS is to shift Medicare payments away from surgical services toward primary care services. It is important, therefore, to monitor the impact of the MFS shifts in payments away from surgical services on access and utilization of surgical services for vulnerable subgroups of the Medicare population.

This purpose of this chapter is to provide baseline trends in the use of surgical procedures performed in the hospital for a vulnerable subgroup of the Medicare population: black beneficiaries. It focuses on the differences found in procedure rates between white and black Medicare beneficiaries in the period before the implementation of the MFS. These trends will be updated with data from 1992 and later years as the data become available.

When the Medicare program began, the hospital discharge rate for all hospital stays was higher for white beneficiaries compared to beneficiaries of all other races. Over time, the discharge rate for persons of all other races increased faster than the rate for white persons[1].

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[1] In the earlier reports, beneficiaries were grouped into only two racial categories: "white" and "non-white" which included black beneficiaries and persons of all other races. In later reports, "non-white" beneficiaries were broken out into "black" and all other.

By 1986, the discharge rate was greater for black beneficiaries than for white beneficiaries (Table 1). The discharge rate continued to be greater for black enrollees through 1990. The convergence of Medicare discharge rates by race has generally been interpreted to signify that access to care has become more equitable.

Recent studies examining the rate of procedures performed in the hospital show differences by race that are not well-understood. A detailed report on the experience of Medicare beneficiaries hospitalized in 1986 showed that for selected procedures, rates were consistently lower for black beneficiaries compared to white beneficiaries (HCFA, 1990). Reports prepared by the Health Care Financing Administration and by the Physician Payment Review Commission, and included in the 1992 access and utilization reports to Congress, indicated that differences by race in the rate of selected procedures persisted throughout the later part of the 1980s (HCFA, 1992; PPRC, 1992). A study by Udvarhelyi et al. (1992), examining procedures performed for Medicare patients hospitalized with acute myocardial infarction (AMI), found that black beneficiaries and women had substantially lower rates of catheterization, coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty (PTCA) in the 90 days following the AMI.

Interpreting these differences by race as measures of differences in access to care presents a number of difficulties. It is well-established that there are racial differences in risk factors and/or disease prevalence for some conditions that would be expected to result in different procedure or hospitalization rates. For example, compared to black beneficiaries, white beneficiaries experience more osteoporosis and are, therefore, at greater risk of hip fracture than black beneficiaries. Thus, a higher rate of hospitalization for procedures to repair fractured hips might be expected among white beneficiaries. Conversely, black beneficiaries experience more hypertension and are at greater risk of stroke than white beneficiaries. Thus, carotid endarterectomy rates might be expected to be higher in black beneficiaries than in white beneficiaries.

Another measure used to help interpret differences in procedure rates is the 30-day post-admission mortality rate. Higher post-admission mortality rates in a population group may be an indicator that a greater proportion of those hospitalized for the procedure are more severely ill. An alternative explanation is that the quality of care received by one group differs from that received by the other group, especially if different population groups are routinely treated by different providers.

The chapter provides rates at which white and black beneficiaries were hospitalized for 20 major procedures in 1990. The procedures were selected either for their frequency, or the lack of agreement about their outcomes and effectiveness, or cost. Included are procedures ranging from newer, "high tech" ones such as CABG surgery to traditional procedures such as inguinal hernia repair.

The data in this chapter represent the inpatient hospital surgical experience for white and black Medicare beneficiaries receiving services in the fee-for-service sector. (Non-surgical stays were not studied.) Analysis of these data is limited by the fact that for most surgeries a measure of the underlying need for services is not readily available for either the total population aged 65 years of age and older, or by race.

METHODS

Data

Data were derived from the Medicare Provider Analysis and Review (MEDPAR) file for each calendar year, 1986 through 1990. The MEDPAR file for each year contains one record for each Medicare-covered stay in a short-stay hospital with a date of discharge in that year. Each record contains dates of admission and discharge, up to five diagnoses (the first listed is the principal diagnosis), and up to three procedures. Diagnoses and procedures are coded using the International Classification of Diseases, (Ninth Revision) with Clinical Modification (ICD-9-CM). Appendix A contains the codes used to identify the procedures described in Tables 2 through 4. Each record also contains the appropriate diagnosis-related group (DRG) used in the Medicare hospital prospective payment system. DRGs were classified as surgical or medical according to the Federal Register dated September 1, 1992. Date of death, obtained from Medicare enrollment files, is appended to the record to track death after discharge from the hospital. Enrollment data from the Medicare denominator files for 1986 through 1990 were used to create rates of use. For Medicare beneficiaries enrolled in health maintenance organizations (HMOs) hospital stay records are incomplete. Therefore, records for HMO enrollees (about 6 percent of all beneficiaries in 1990) were eliminated from all files.

Measures

In Tables 2-4, a procedure was counted if it appeared in any of the three fields reserved on the record for procedures. Rates per 1,000 Medicare beneficiaries were age and sex adjusted by the direct method, using the 1986 age-sex composition of the Medicare population as the standard.

The 30-day post-admission death rate is the rate of death within 30 days of admission per 1,000 discharges. In Tables 2-4, the 30-day post-admission death rates for each procedure were age- and sex-adjusted by the direct method, using the 1986 distribution of discharges for that procedure as the standard.

RESULTS

As noted earlier, the total discharge rate for black persons compared with white persons was greater for each year from 1986 through 1990 which was caused by the higher discharge rate for medical DRGs among black persons. However, the discharge rate for surgical DRG's was lower among black beneficiaries than among white beneficiaries for all of these years. The ratio of the discharge rates (black:white) during the period 1986-1990 ranged between 0.84 and 0.86 (Table 1).

Table 2 shows the discharge rates in 1990 for cardiac catheterization (a diagnostic procedure) as well as the rates for PTCA, CABG, pacemaker implantation, and carotid endarterectomy, four relatively discretionary therapeutic procedures. In 1990, CABG was the most frequently performed of these therapeutic procedures, with the rate for white beneficiaries (3.56 procedures per 1,000 enrollees) substantially higher than the rate for black beneficiaries (1.34 procedures per 1,000 enrollees). In fact, all five procedures were performed at a substantially higher rate for white beneficiaries compared to black beneficiaries. The ratio of the discharge rates (black:white) for these procedures were 0.30 for carotid endarterectomy, 0.37 for CABG surgery, 0.40 for PTCA, 0.65 for cardiac catheterization, and 0.84 for pacemaker implantation.

Table 2 also shows that the 30-day post-admission death rate was higher for black beneficiaries for all four therapeutic procedures. For CABG, the 30-day post-admission death rate was 42.11 deaths per 1,000 procedures while for white beneficiaries the rate was 32.8 deaths per 1,000 procedures. The ratio of the 30-day post-admission death rates (black:white) ranged from 1.16 for PTCA to 1.28 for CABG surgery and carotid endarterectomy.

Table 3 shows procedure rates and 30-day post-admission death rates for orthopedic and back procedures. For the two newest of these procedures -- total hip replacement and total knee replacement -- and the highly discretionary back procedures, the results are similar to those shown in Table 2 for cardiovascular procedures. That is, white beneficiaries had higher discharge rates while black beneficiaries had higher 30-day post-admission death rates.

There are two procedures -- reduction of fracture of femur and other arthroplasty of hip -- for which the procedure rate is substantially greater in white persons than in black persons, while the 30-day post-admission mortality rate is also greater among white persons. The ratio of the 30-day post-admission death rate (black:white) was 0.78 for reduction of fracture of the femur and 0.95 for other arthroplasty of the hip.

Table 4 presents similar information for eight procedures performed commonly among Medicare beneficiaries. These procedures had minimal or no major technological changes nor major increases in rates during the period 1986-1990. In 1990, the ratio of the procedure rate for black beneficiaries to that for white beneficiaries ranged from 0.91 for prostatectomy to 0.62 for cholecystectomy. In every case the 30-day post-admission death rate was greater for black beneficiaries compared to white beneficiaries. The ratio of the 30-day post-admission mortality rates (black:white) ranged from 1.18 for prostatectomy to 2.22 for hysterectomy.

DISCUSSION

During the period 1986-1990, Medicare discharge rates were 3 to 9 percent higher for black beneficiaries compared to white beneficiaries. These overall figures show a reversal in the differences found in the early years of the Medicare program, when it was felt that lower rates of hospitalization for black beneficiaries signified unequal access to care by race. However, during these recent 5 years, the surgical DRG rate for black beneficiaries was consistently lower than among white beneficiaries. When procedure rates are examined in detail (using ICD-9-CM codes), questions are raised about the differences in treatment patterns by race that existed in the period before implementation of the MFS. Some of the differences shown in this report for repair of inguinal hernia and cardiac catheterization may be explained by the fact that these procedures are often performed on an outpatient basis. Chapters 6 and 7, which provide information collected by national survey, show that black beneficiaries (and the poor) had higher rates of use of the hospital outpatient department. However, the other procedures examined here are done primarily in the inpatient setting. It is therefore important that efforts be made to understand the reasons for the differences shown in this report. These differences must be carefully monitored during and after the implementation of the MFS, especially since the MFS is designed to shift Medicare payment toward primary care services.

It is necessary to understand the need in each race for these surgical procedures before concluding that the differences in utilization reflect unequal access to surgical care. For example, Javitt et al. (1991) analyzed differences by race in glaucoma surgery for black and white Medicare beneficiaries. Using the population-based estimate of a four-fold greater prevalence of glaucoma in black persons, they concluded that although the rate of surgery was 2.2 times higher among black beneficiaries compared to white beneficiaries, the rate for black beneficiaries was 45 percent lower than expected. Not only is additional information required about differences in need by race, but it is critical to develop reliable methods to translate need into expected hospital utilization rates, if we are to evaluate equity in access across minority and other vulnerable subgroups.

The differences by race in procedure rates for the newer, more highly elective procedures (Tables 2 and 3) were nearly always greater than were the differences by race in the procedure rates for the well-established, or less elective procedures (Table 4). The larger differences in treatment patterns by race for new and/or more elective procedures is consistent with the findings by Wennberg et al. (1982) that geographic variations tend to be greater for procedures for which there are greater differences of opinion among physicians and patients about the appropriateness of performing the procedure. Thus, it is possible that individuals within the group with the higher rate of surgery (i.e., white beneficiaries) are undergoing procedures that may not be appropriate. These differences by race may also reflect a slower diffusion of new technologies into vulnerable subgroups of the Medicare population.

Except for the procedures performed for hip fracture, the 30-day post-admission death rates were higher for black beneficiaries than for white beneficiaries. This may indicate that, on average, black beneficiaries who undergo the other procedures described in this chapter are more severely ill than white beneficiaries or, there may be differences in the quality of care between the two groups.

The differences by race in hospitalization and 30-day post-admission mortality rates for the major procedures examined here seem to indicate that treatment patterns are different in each race group. There are a number of factors that might influence differences in hospital treatment practices. Having supplemental health insurance may play some role. Black beneficiaries have lower rates of private insurance supplemental to Medicare and higher rates of Medicare/Medicaid coverage than white beneficiaries (see Chapters 6 and 7). However, the differences in treatment practices appear so large as to very likely reflect factors other than health insurance coverage. Differences in economic status, patient preferences, and provider opinion and selection may explain some of the differences by race.

There is a growing consensus that health insurance should be available for every person in the Nation. These data for Medicare beneficiaries suggest that health insurance is a necessary, but not sufficient, condition for assuring that access to care is equitable for all of the population. Clearly, overall hospitalization rates for different racial groups are not a sensitive indicator of access to care. To be assured of equal access requires more detailed information on utilization and more knowledge than we presently have developed on "need". Risk factors, health status, functional status, medical history, and quality of life information, which will be collected by the Medicare Beneficiary Health Status Registry and the Medicare Current Beneficiary Survey, will provide Medicare with a better understanding of the need for surgery in the Medicare population.

The 1980s saw the emergence of a trend toward the support of research relating to the outcomes and effectiveness of medical and surgical treatments. That initiative was stimulated by the large and unexplained variations across geographic areas in treatment practices. Differences by race in Medicare procedure rates, documented in this chapter, underscore the importance of developing better information about the roles of income, insurance, as well as the need for care by subgroups of our population.

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Table 1 - Number of discharges and rate per 1,000 Medicare enrollees 65 years and older: by diagnosis-related groups (DRGs), and by race, 1986-1990

	White beneficiaries		Black beneficiaries		Ratio
Year	Number discharges	Rate (per 1,000 enrollees)	Number discharges	Rate (per 1,000 enrollees)	Black/ white
		Total discharges			
1986	7,693,042	325.47	667,469	334.24	1.03
1987	7,682,474	321.75	680,092	336.01	1.04
1988	7,789,185	321.34	698,528	340.41	1.06
1989	7,662,276	310.86	703,794	337.55	1.09
1990	7,891,328	315.74	725,966	342.92	1.09
		Medical DRGs			
1986	5,593,144	236.63	518,548	259.66	1.10
1987	5,503,249	230.48	522,911	258.36	1.12
1988	5,579,920	230.19	537,688	262.03	1.14
1989	5,498,962	223.09	546,108	261.92	1.17
1990	5,673,394	227.00	566,465	267.58	1.18
		Surgical DRGs			
1986	2,099,898	88.84	148,921	74.57	0.84
1987	2,179,225	91.27	157,181	77.66	0.85
1988	2,209,265	91.14	160,840	78.38	0.86
1989	2,163,314	87.76	157,686	75.63	0.86
1990	2,217,934	88.74	159,501	75.34	0.85

NOTE: Only aged Medicare enrollees who were not members of health maintenance organizations (HMOs) are included.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy: Medicare Administrative Data System.

Table 2. Number of discharges, discharge rate per 1,000 Medicare enrollees 65 years and older, and 30-day post-admission death rate, for selected heart and vascular procedures, by race, United States, 1990

	Discharge Rate					30-day Post-admission Death Rate		
	White beneficiaries		Black beneficiaries		Ratio	White beneficiaries	Black beneficiaries	Ratio
Procedure	Number discharges	Rate*	Number discharges	Rate*	Black/ White	Rate**	Rate**	Black/ White
Cardiac catheterization	344,039	13.82	18,689	8.97	0.65	NA	NA	--
Percutaneous transluminal coronary angioplasty	88,594	3.56	2,942	1.41	0.40	23.88	27.59	1.16
Coronary artery bypass graft	90,749	3.64	2,792	1.34	0.37	32.87	42.11	1.28
Pacemaker implantation	75,349	2.97	5,275	2.48	0.84	27.22	32.45	1.19
Carotid endarterectomy	43,314	1.73	1,090	0.52	0.30	18.54	23.66	1.28

*per 1,000 enrollees, age-sex adjusted

**per 1,000 discharges, age-sex adjusted

NA = Not applicable. Mortality following catheterization is primarily due to subsequent therapeutic interventions.

NOTE: Only aged Medicare enrollees who were not members of health maintenance organizations (HMOs) are included.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy: Medicare Administrative Data System.

Table 3. Number of discharges, discharge rate per 1,000 Medicare enrollees 65 years and older, and 30-day post-admission death rate, for orthopedic and back procedures, by race, United States, 1990

	Discharge Rate					30-day Post-admission Death Rate		
	White beneficiaries		Black beneficiaries			White beneficiaries	Black beneficiaries	
Procedure	Number discharges	Rate*	Number discharges	Rate*	Ratio Black/White	Rate**	Rate**	Ratio Black/White
Orthopedic Procedures								
Reduction of fracture of femur	121,773	4.76	4,343	2.02	0.42	58.28	45.71	0.78
Other arthroplasty of hip	62,945	2.46	2,474	1.15	0.47	55.88	53.35	0.95
Total knee replacement	80,990	3.24	4,256	2.02	0.62	5.52	8.75	1.59
Total hip replacement	63,260	2.52	2,408	1.14	0.45	14.71	15.42	1.05
Back Procedures								
Laminectomy	33,852	1.36	1,536	0.74	0.54	11.75	18.53	1.58
Excision of disk	30,589	1.23	1,289	0.62	0.50	6.38	15.48	2.43
Spinal fusion	11,387	0.46	581	0.28	0.61	18.87	20.99	1.11

*per 1,000 enrollees, age-sex adjusted

**per 1,000 discharges, age-sex adjusted

NOTE: Only aged Medicare enrollees who were not members of health maintenance organizations (HMOs) are included.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy: Medicare Administrative Data System.

Table 4. Number of discharges, discharge rate per 1,000 Medicare enrollees 65 years and older, and 30-day post-admission death rate, for selected procedures, by race, United States, 1990

	Discharge Rate					30-day Post-admission Death Rate		
	White beneficiaries		Black beneficiaries		Ratio	White beneficiaries	Black beneficiaries	Ratio
Procedure	Number discharges	Rate*	Number discharges	Rate*	Black/ White	Rate**	Rate**	Black/ White
Prostatectomy	226,416	22.41	16,911	20.44	0.91	9.59	11.31	1.18
Cholecystectomy	131,430	5.25	6,919	3.28	0.62	29.87	39.77	1.33
Partial excision of large bowel	104,224	4.14	7,766	3.68	0.89	70.25	84.43	1.20
Repair of inguinal hernia	59,174	2.34	3,489	1.68	0.72	13.75	21.10	1.53
Mastectomy	54,284	3.59	3,491	2.69	0.75	5.23	8.13	1.55
Hysterectomy	51,258	3.46	2,779	2.19	0.63	7.40	16.41	2.22
Appendectomy	11,157	0.45	691	0.33	0.73	27.39	47.84	1.75
Incidental appendectomy	10,635	0.43	747	0.36	0.84	30.74	44.77	1.46

*per 1,000 enrollees, age-sex adjusted

**per 1,000 discharges, age-sex adjusted

NOTE: Only aged Medicare enrollees who were not members of health maintenance organizations (HMOs) are included.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy: Medicare Administrative Data System.

Chapter 5
Baseline Trends in the Supply of Physicians, 1984-1990

INTRODUCTION

Monitoring trends in physician supply can be useful in assessing Medicare beneficiaries' access to care as the MFS is implemented. Trend analysis in the post-implementation period requires an understanding of supply patterns before MFS was put into place. This chapter provides an analysis of the supply of physicians in this baseline period.

Using a file created by HCFA and Project HOPE, physician-to-population ratios have been constructed for the period 1984-1990 by physician type (medical/surgical) and geographic areas. As noted in Chapter 1, physician-to-population ratios are an acknowledged indicator of "potential" access. At this time, the HCFA-Project HOPE file provides data for assessing physician supply patterns the years prior to OBRA 1989 reforms. As additional data become available, the file will be updated and used for identifying changes that may be associated with specific components of the MFS, and with the Medicare Volume Performance Standards (MVPS).

The MFS is structured to increase medical service payments relative to surgical service payments. Similarly, the MFS's geographic adjustment factor increases payments to physicians practicing in rural or low cost geographic areas relative to higher cost urban areas.

Because the fee schedule itself only addresses unit price, the MVPS was established to help control the rate of growth in total physician expenditures. Under the MVPS, annual fiscal year target standards are established for all physician services, and for surgical and non-surgical (medical) services.[1] In fiscal years 1991 and 1992, surgical target increases were set at 3.3 percent and 6.5 percent; non-surgical target increases for these years were set at much higher levels, 8.6 percent and 11.2 percent, respectively. These differential target increases reflect recognition of the more rapid growth in non-surgical services. The resulting financial incentives could have dissimilar, long-term influences on the supply and distribution of medical and surgical physicians. Thus, monitoring supply trends for these physician groups can reveal payment effects on physician supply patterns. Similarly, the urban/rural incentives contained within the MFS suggest the importance of monitoring geographic patterns along these lines.

Three geographic groupings are used in this analysis including: the four U.S. census regions, the ten metropolitan/non-metropolitan areas described in Appendix B, and the four ex ante impact areas.[2]

METHODS

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[1] Comparisons of actual fiscal year outlay changes with targets have been used annually to update dollar conversion factors in the MFS for surgical and non-surgical services. In the latest MFS regulations surgical services are identified on a procedure-specific basis. (Published for comment in the Federal Register, November 25, 1992, Vol 57(228) 56171.) Prior methods defined surgical services according to a generic service classification and the specialty of the performing physician.

[2] Ex ante impact areas were defined in terms of State groupings based on the estimated impact of overall physician payment reform as published in the November 25, 1991, Federal Register Vol. 56(227). States were grouped according to the overall estimated change in Medicare physician payments by the year 1996, as follows: 1) "increase" (+4% to +12%); "no change" (+3% to -3%); "moderate decrease" (-4% to -9%); and 4) "large decrease" (-10% to -20%).

Physician-to-population ratios were developed using counts of doctors of medicine (MDs),[3] as recorded on the Health Resources and Services Administration's Area Resource File (ARF) as the numerators; the denominators were generated from HCFA's Denominator File. The numerators exclude those physicians (MDs) unlikely to render care to Medicare beneficiaries.[4] In all, twenty-nine physician specialties were included as the basis for the ratio calculations presented in this chapter. These specialties are listed in Table 1 according to medical and surgical categories. Surgical specialties listed in Table 1 were based on the surgical services appearing in the November 25, 1991 Federal Register.

The denominators were based upon counts of total Medicare beneficiaries eligible for (Part B) physician services, including the aged, disabled, and end-stage renal disease (ESRD) categories.[5] Partial-year eligibility was taken into account by computing person-months of eligibility, and then annualizing the data.

RESULTS

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[3] Doctors of osteopathy were not included because of a lack of consistent data on these providers. Additionally, Federal physicians, such as those serving in the National Health Service Corps (NHSC) were not included because of data limitations. These exclusions may result in understating physician availability, particularly in rural areas served by NHSC physicians. Similarly, physician availability may be understated for areas with relatively large proportions of doctors of osteopathy. Conversely, physicians employed by HMOs could not be excluded because county-level data were lacking. Similarly, it was not possible to exclude physicians who do not accept Medicare patients. These factors would tend to overstate physician availability for Medicare patients affected by the fee schedule.

[4] The following specialties were excluded from the ratio calculation: pediatrics, pediatric allergy, pediatric cardiology, aerospace medicine, child psychiatry, forensic pathology, general preventive medicine, public health, other specialties (not listed), and unspecified specialty.

[5] Medicare HMO enrollees were included in the counts of beneficiaries because it was not possible to exclude HMO physicians in the construction of the numerator.

Table 2 shows the numbers of total physicians, surgical physicians, medical physicians, and the ratios of medical-to-surgical physicians for the period 1984-1990. In 1984, there were 2.04 medical physicians for every surgical physician practicing in the U.S. This ratio increased steadily throughout the period reaching 2.26 in 1990, indicating a growth in the concentration of medical physicians relative to surgeons.

Tables 3 through 5 present trends in physician-to-population ratios for the period 1984-1990 by census regions, metropolitan/non-metropolitan groups, and ex ante impact groups. Table 3 shows these trend data based on total numbers of physicians. These ratios indicate a steady year-to-year upward trend in the total physician-to-population ratio from 1,249 physicians per 100,000 beneficiaries in 1984 to 1,332 per 100,000 in 1989; the ratio declined slightly to 1,325 in 1990. During the period 1984-1990 physician supply increased 6.04 percent faster than the beneficiary population, for an average annual increase of 0.99 percent. These ratios suggest that accessibility to physicians, as determined by supply, generally increased for the overall period.

Throughout the period 1984-1990, physicians per 100,000 beneficiaries in the Northeast and West census regions were much higher than the rest of the nation. In 1990, physician-to-population ratios in the Northeast and West (1,550 and 1,566) were about 33 percent greater, on average, than the corresponding ratios in the South and Midwest (1,182 and 1,148). Figure 1 illustrates these regional differences and the general upward trends in the physician-to-population ratios over the seven-year period.

It is important to note that overall increases in this ratio during the period 1984-1990 were lowest in the West (1.45) and highest in the Northeast (10.68). Increases in the Midwest and South were also lower than the Northeast, where the physician-to-population ratio was notably higher in 1984.

With respect to geographic patterns in 1990, metropolitan areas had more than twice the number of physicians per 100,000 beneficiaries (1,609) than did the non-metropolitan areas (561). At the extremes, the large core metropolitan areas had a ratios of 2,015 per 100,000 in 1990, over seven-fold the concentration of physicians in thinly populated non-metropolitan areas with ratios of 260 and 268.

Within the non-metropolitan areas, urban areas non-adjacent to metropolitan areas in 1990 stand out as having the highest ratio (1,001); the next highest physician concentration within this group are the urban areas adjacent to metropolitan areas (680). This difference suggests that the urban non-adjacent areas are not as reliant on metropolitan areas for physician services as are the urban areas adjacent to metropolitan areas. The ratios for the remaining less urban and thinly populated areas are low, and range from 260 to 498, reflecting the relative scarcity of physicians.

Large core and large fringe metropolitan areas (the areas with the overall highest concentrations of physicians) experienced the highest growth rates in physician concentration, 7.93 and 9.09 percent increases for the period. At the other extreme, non-metropolitan urban areas adjacent to metropolitan areas showed a very low growth rate (0.15) for the period 1984-1990.

In 1990, within the ex ante impact groups, there was a relatively narrow range between areas with the lowest and highest physician concentrations, ranging from 1,189 per 100,000 Medicare beneficiaries in the "no change" payment areas to 1,440 in the "large decrease" payment areas, about a 20 percent difference.

Table 4 shows surgical physicians per 100,000 Medicare beneficiaries. As shown, surgical physician-to-population ratios dropped slightly over the 1984-1990 period, with the high occurring in 1989 (418) and the low in 1990 (407). This ratio remained relatively stable from 1984 to 1988. Throughout the entire 1984-1990 period, there was an overall decline of 0.97 percent.

The concentrations of surgeons in 1990 was highest in the West region (475) followed closely by the Northeast (458), a pattern similar to the one shown for total physicians (see Table 3). During the period 1984-1990 the Northeast showed the only increase in the surgical physician-to- Medicare population ratio, rising modestly by 2.51 percent; small declines were experienced in the remaining Census regions, with the steepest decline occurring in the West (-4.23 percent).

Substantial differences are apparent between the metropolitan and non-metropolitan areas, with the metropolitan areas having over three times as many surgeons per 100,000 beneficiaries in 1990 compared to the non-metropolitan areas (498 and 159, respectively). Concentrations of surgeons are relatively high in the large core areas (623). Within the non-metropolitan areas a relatively high ratio for urban non-adjacent areas can be seen (340). The thinly populated areas (adjacent and non-adjacent to metropolitan areas) had very low ratios (31 and 37) in 1990.

In 1990, ex ante impact groups ranged in concentrations from 355 in areas with "no change" expected to 450 in areas with a "large decrease" expected in physician payments. Small decreases in the surgeon-to-population ratios occurred during the period 1984-1990 in all these ex ante areas, except for the "no change" area which showed a small increase.

Table 5 contains medical physicians per 100,000 Medicare beneficiaries for the 1984-1990 seven year period. An overall increase of 9.48 percent in medical physician-to-population ratios occurred during the 1984-1990 year period. The ratio for the U.S. in 1990 was 918 per 100,000 beneficiaries.

Patterns of medical physician ratios are similar to the overall patterns found for surgical physicians across the various geographic clusters. In 1990, the Northeast and West had equivalent ratios (1,092 and 1,091, respectively), both being much higher than the rest of the country; the highest growth rate for medical physicians occurred in the Northeast (14.52 percent) and the lowest in the West (4.14 percent).

The ratio of medical physicians per 100,000 Medicare beneficiaries in 1990 was 1,110 for metropolitan areas and 402 for non-metropolitan areas. Other urban/rural patterns for medical physicians are similar to those seen for surgeons, except that in thinly populated areas the ratios are not as low.

DISCUSSION

In the U.S., the overall supply of physicians increased at a slow but steady pace from 1984 to 1990, as measured by physician-to-Medicare population ratios. Total physicians per 100,000 beneficiaries rose from 1,249 in 1984 to 1,325 in 1990. The ratio for medical specialties increased more than the overall growth rate, while the ratio for surgeons showed a slightly negative growth rate.

For every two physicians in a medical specialty in the U.S. during 1984-1990, there was approximately one physician in a surgical specialty. In 1984, the ratio of medical-to-surgical physicians was 2.04; this ratio increased to 2.26 in 1990, reflecting an overall increasing trend in the supply of medical physicians relative to surgeons for the seven-year period. Consideration of this baseline change in the mix of medical and surgical physicians will be important in assessing the potential effect of the incentive structure incorporated into the MFS and the MVPS.

Wide differences in the geographic supply of physicians existed throughout the study period with the Northeast and West showing much higher concentrations of physicians relative to the number of Medicare beneficiaries, compared with the rest of the country.

Not only was the concentration of physicians highest in the Northeast, the ratio grew at a rate exceeding the national average. The high ratios for the West region may understate beneficiary access (as compared to the Northeast) because of the high geographic dispersion of both physicians and beneficiaries in the western states. In addition, the high ratios shown for large core metropolitan areas probably overstate physician supply because of the relatively larger service areas of physicians practicing in large cities.

In 1990, there was more than twice the number of total physicians per 100,000 beneficiaries in metropolitan areas compared to non-metropolitan areas, with the lowest ratios occurring in thinly populated areas. However, these large differences in physician-to-population ratios between metropolitan and non-metropolitan areas are of a much greater magnitude than the 14 percent difference found in physician visit rates for beneficiaries residing in these respective areas (see Chapter 3). These findings reflect, in part, the reliance of non-metropolitan beneficiaries on physicians practicing in metropolitan localities.

Although the mix of medical and surgical physicians was relatively consistent for most of the Nation, thinly populated areas showed relatively low numbers of surgical physicians per 100,000 beneficiaries. The ratio of medical-to- surgical physicians in these thinly populated areas in 1990 was 6.24 and 7.39 compared to a ratio of 2.23 in metropolitan areas. As the MFS is fully implemented, it will be important to identify changes that may occur in physician-to-population ratios, and to monitor beneficiary utilization and access to services, particularly for rural areas.

REFERENCES

Federal Register November 25, 1991 Vol.56 (227)

Figure 1
Trends in Total Physicians per 100,000 Medicare Beneficiaries by Census Region

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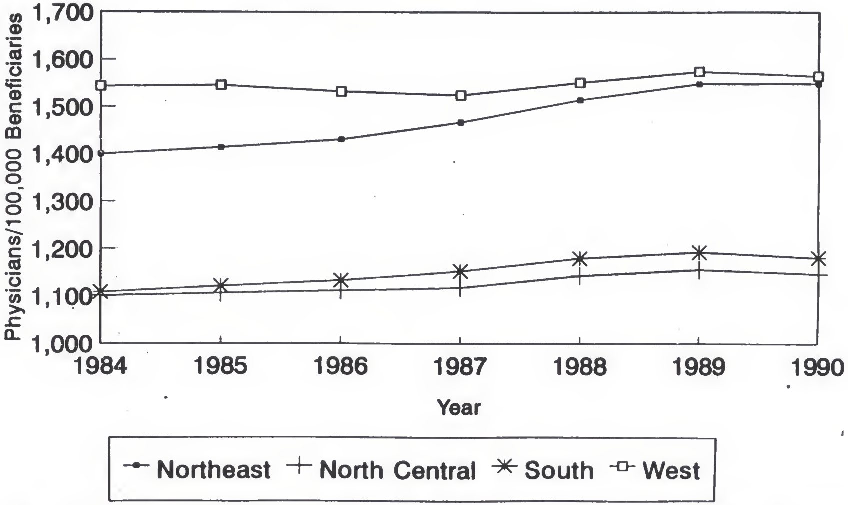

Source: Derived from tables prepared by Project HOPE; based on the ARF and HCFA Denominator File

Table 1. Specialties Used in Physician-to-Medicare Population Ratio Calculations

Medical	Surgical
Allergy	Colon/Rectal Surgery
Anesthesiology	Dermatology
Cardiovascular Disease	General Surgery
Diagnostic Radiology	Neurological Surgery
Emergency Medicine	Obstetrics-Gynecology
Family Practice	Ophthalmology
Gastroenterology	Orthopedic Surgery
General Practice	Otolaryngology
Internal Medicine	Plastic Surgery
Neurology	Thoracic Surgery
Nuclear Medicine	Urology
Occupational Medicine	
Pathology	
Physical Medicine and Rehabilitation	
Psychiatry	
Pulmonary Disease	
Radiology	
Therapeutic Radiology	

Note: Surgical specialties are based upon those specialties considered as "surgical" in the November 25, 1991, Federal Register Vol. 56 (227). Some of the surgical specialties referenced in this Federal Register notice were not included in the above list because they were either limited license (non-MD) practitioners or could not be identified in the ARF. These include: oral surgeons, podiatrists, hand surgeons, and multispecialty clinics.

Otorhinolaryngologists are among the surgical specialties in the Federal Register notice but are not specifically referenced in the ARF. Otolaryngologists were substituted for this specialty.

Table 2

Medical and Surgical Physician Supply Trends, U.S. 1984 - 1990

	1984	1985	1986	1987	1988	1989	1990
Total Physicians	362,063	371,949	381,833	393,996	409,277	421,587	426,332
Total Medical Physicians	243,051	250,591	258,130	268,415	280,286	289,312	295,471
Total Surgical Physicians	119,012	121,358	123,703	125,581	128,991	132,275	130,861
Ratio of Medical to Surgical Physicians	2.04	2.06	2.09	2.14	2.17	2.19	2.26

Source: Derived from tables prepared by Project HOPE: based on the Area Resource File and HCFA Denominator File.

Table 3

Total Physicians per 100,000 Medicare Beneficiaries, U.S. 1984 - 1990

								Percent Change	
	1984	1985	1986	1987	1988	1989	1990	Total	Annual
U.S. Total	1,249	1,259	1,267	1,282	1,313	1,332	1,325	6.04	0.99
Census Region									
Northeast	1,400	1,415	1,432	1,468	1,515	1,549	1,550	10.68	1.71
North Central	1,101	1,106	1,112	1,118	1,143	1,156	1,148	4.29	0.71
South	1,108	1,121	1,133	1,153	1,180	1,193	1,182	6.69	1.09
West	1,544	1,546	1,533	1,525	1,552	1,575	1,566	1.45	0.25
Metropolitan/Non Metropolitan									
Metropolitan	1,515	1,525	1,534	1,555	1,593	1,617	1,609	6.16	1.01
Large Core	1,867	1,882	1,895	1,933	1,988	2,020	2,015	7.93	1.29
Large Fringe	1,380	1,394	1,411	1,434	1,475	1,508	1,505	9.09	1.46
Medium	1,305	1,311	1,317	1,331	1,361	1,378	1,372	5.18	0.85
Small	1,190	1,196	1,199	1,199	1,219	1,236	1,220	2.52	0.42
Non-Metropolitan	545	552	556	552	563	569	561	2.94	0.49
Urban Adjacent	679	683	686	676	686	693	680	0.15	0.03
Urban Non-Adjacent	981	989	986	985	1,000	1,012	1,001	2.12	0.35
Less Urban Adjacent	423	431	438	436	443	449	441	4.31	0.71
Less Urban Non-Adjacent	490	496	498	492	502	505	498	1.74	0.29
Thinly Pop Adjacent	253	257	260	263	269	269	260	2.45	0.42
Thinly Pop Non-Adjacent	258	265	270	266	274	274	268	3.80	0.64
Ex Ante Impact Group									
Increase	1,191	1,196	1,188	1,197	1,220	1,236	1,233	3.54	0.59
No Change	1,092	1,105	1,118	1,136	1,166	1,191	1,189	8.83	1.42
Moderate Decrease	1,275	1,285	1,295	1,315	1,349	1,367	1,360	6.62	1.08
Large Decrease	1,386	1,394	1,400	1,407	1,437	1,455	1,440	3.93	0.65

Note: Ex Ante Impact Group refers to areas grouped according to expected changes in Medicare physician payment under PPR, as published in the Federal Register Vol. 56 (227). See Appendix C.

Source: Derived from tables prepared by Project HOPE: based on the Area Resource File and HCFA Denominator File.

Table 4

Surgical Physicians per 100,000 Medicare Beneficiaries, U.S. 1984 – 1990

								Percent Change	
	1984	1985	1986	1987	1988	1989	1990	Total	Annual
U.S. Total	411	411	410	409	414	418	407	–0.97	–0.15
Census Region									
Northeast	446	447	449	451	459	467	458	2.51	0.42
North Central	350	349	348	345	350	352	344	-1.77	-0.29
South	389	390	391	390	395	398	384	-1.34	-0.21
West	496	495	488	481	483	488	475	-4.23	-0.71
Metropolitan/Non-Metropolitan									
Metropolitan	505	504	504	501	508	512	498	-1.35	-0.22
Large Core	616	617	617	619	630	638	623	1.17	0.20
Large Fringe	443	444	446	444	450	456	447	1.06	0.18
Medium	449	446	444	439	444	447	434	-3.27	-0.54
Small	411	409	407	402	406	407	390	-5.07	-0.85
Non-Metropolitan	160	161	162	160	162	164	159	-0.44	-0.06
Urban Adjacent	227	227	226	223	223	224	214	-5.55	-0.93
Urban Non-Adjacent	356	354	350	348	349	351	340	-4.27	-0.72
Less Urban Adjacent	101	104	107	106	108	110	107	6.25	1.04
Less Urban Non-Adjacent	133	135	136	133	135	136	133	-0.30	-0.04
Thinly Pop Adjacent	28	29	30	31	31	32	31	10.91	1.81
Thinly Pop Non-Adjacent	37	37	37	35	37	39	37	1.64	0.38
Ex Ante Impact Group									
Increase	391	390	384	381	385	387	379	-2.97	-0.50
No Change	352	353	355	353	358	365	355	0.91	0.16
Moderate Decrease	419	419	419	418	424	428	417	-0.52	-0.08
Large Decrease	462	462	462	458	462	466	450	-2.55	-0.42

Note: Ex Ante Impact Group refers to areas grouped according to expected changes in Medicare physician payment under PPR, as published in the Federal Register Vol. 56 (227). See Appendix C.

Source: Derived from tables prepared by Project HOPE: based on the Area Resource File and HCFA Denominator File.

Table 5

Medical Physicians per 100,000 Medicare Beneficiaries, U.S. 1984 - 1990

								Percent Change	
	1984	1985	1986	1987	1988	1989	1990	Total	Annual
U.S. Total	839	848	856	873	899	914	918	9.48	1.52
Census Region									
Northeast	954	967	982	1,017	1,057	1,082	1,092	14.52	2.29
North Central	751	757	764	773	793	805	804	7.11	1.15
South	719	731	743	763	785	795	799	11.04	1.76
West	1,048	1,052	1,045	1,044	1,069	1,087	1,091	4.14	0.68
Metropolitan/Non-Metropolitan									
Metropolitan	1,010	1,020	1,030	1,054	1,086	1,105	1,110	9.92	1.59
Large Core	1,251	1,265	1,278	1,313	1,358	1,382	1,392	11.26	1.80
Large Fringe	937	950	964	990	1,025	1,052	1,058	12.88	2.04
Medium	856	864	873	891	917	931	938	9.62	1.55
Small	779	786	791	797	813	829	830	6.52	1.06
Non-Metropolitan	385	391	394	392	400	405	402	4.34	0.72
Urban Adjacent	452	457	461	453	464	469	466	3.03	0.51
Urban Non-Adjacent	625	634	637	637	652	661	661	5.76	0.94
Less Urban Adjacent	322	327	331	330	335	339	334	3.70	0.61
Less Urbam Non-Adjacent	357	361	362	359	366	369	366	2.49	0.42
Thinly Pop Adjacent	226	228	231	232	238	237	229	1.42	0.25
Thinly Pop Non-Adjacent	222	228	233	231	237	235	231	4.15	0.70
Ex Ante Impact Group									
Increase	800	806	804	816	834	849	854	6.73	1.09
No Change	740	752	763	783	808	826	834	12.60	2.00
Moderate Decrease	856	866	876	896	925	939	942	10.11	1.62
Large Decrease	924	932	939	949	974	989	990	7.18	1.17

Note: Ex Ante Impact Group refers to areas grouped according to expected changes in Medicare physician payment under PPR, as published in the Federal Register Vol. 56 (227). See Appendix C.

Source: Derived from tables prepared by Project HOPE: based on the Area Resource File and HCFA Denominator File.

Chapter 6

Utilization, Access, and Satisfaction With Care Among Noninstitutionalized Medicare Beneficiaries: A Baseline Analysis

INTRODUCTION

This chapter draws on the Medicare Current Beneficiary Survey (MCBS), a survey of Medicare beneficiaries sponsored by the Health Care Financing Administration, that gathers detailed information on utilization, access, and satisfaction within the Medicare population. The MCBS is designed as a four-year panel, enabling longitudinal analysis of access impacts.

This analysis provides a baseline for the one year period prior to the introduction of the Medicare Fee Schedule (MFS). Future analyses will track changes in utilization, access, and satisfaction within the Medicare population. The analysis focuses on populations that may be particularly vulnerable to shifts in the supply of physician services resulting from the MFS. The richness of the MCBS provides an opportunity to track a variety of potentially vulnerable subgroups of the Medicare population, defined according to health status, race/ethnicity, expected size of the payment reduction, and financial status.

The MCBS offers a number of advantages over Medicare claims data. First, claims data do not contain complete utilization data for enrollees in health maintenance organizations. The MCBS contains self-reported information on access and utilization by all Medicare enrollees. Second, the MCBS gathers information on utilization of covered and non-covered services. Claims would only reflect covered services. Third, the MCBS gathers detailed information on health status, supplemental insurance coverage, income, and other demographic characteristics, that may explain variations in utilization within the Medicare population. Finally, the MCBS offers a variety of access and satisfaction indicators that can be tracked over time.

The principal disadvantage of the MCBS may be its reliance on self-reported data. To the extent that Medicare beneficiaries (or their proxies) have limited recall of health care events, data reliability is reduced. To compensate, both self-reported utilization data from the MCBS and matched Medicare claims data for the survey participants are included in the analysis. Together, the survey and claims data provide a richer understanding of the determinants of access and utilization.

METHODS

This analysis is based on Round 1 of the MCBS, conducted between September and December 1991. The MCBS sample was drawn from the Medicare enrollment file, using a stratified, multistage, area probability design. The Round 1 sample contained 14,530 cases, of which 12,677 were completed, for a response rate of 87 percent. This analysis is restricted to the 11,735 interviews with individuals residing in the community; interviews with 942 institutionalized Medicare beneficiaries are excluded. In addition, only those who were alive as of January 1, 1992 are included. Further, Medicare beneficiaries in Puerto Rico are excluded. Finally, three cases "interviewed in error" are omitted, as well as one case with no Medicare coverage in 1991.[1] The final sample size for this analysis is 11,470.

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[1] HCFA's administrative records indicated that Part A coverage for this respondent began in 1987 and ended in 1989. No Part B coverage was indicated.

This study examines indicators of both potential and realized access.[2] Multivariate analysis explores the equitability of access within the Medicare population.[3] The focus throughout is on potentially vulnerable populations. Appendix A describes the analytic framework for defining access and vulnerable populations. Appendix B defines the dependent and independent variables used in the analysis.

Because of the complex sample design (clustering, stratification, and unequal probabilities of selection), it is inappropriate to use statistical procedures that assume simple random sampling. Weighting and standard error adjustments have been made using SUDAAN software, developed by Shah et al. (1992).[4]

RESULTS

Characteristics of the Noninstitutionalized Medicare Population

The noninstitutionalized Medicare population was comprised primarily of elderly individuals (ages 65 and over), who accounted for 90.9 percent of the enrollees in 1991 (Table 1). Those age 85 and over, known as the "oldest old," were 7.3 percent of this population, and 8.1 percent of those 65 years and over. The disabled and the oldest old, although relatively small in number, are potentially vulnerable populations because of their complex and considerable needs for medical care. Women represented over half (57.4 percent) of all noninstitutionalized enrollees; men, however, represented a disproportionate share of the disabled. About 85 percent of the population was non-Hispanic white and the remaining 15 percent included individuals of other races/ethnicities. Minorities were disproportionately represented among the disabled (under age 65), suggesting a particularly vulnerable population. Slightly more than half completed high school. On average, the disabled have slightly lower educational attainment, perhaps reflecting the inclusion of dependent adults who were disabled in childhood (Lubitz and Pine, 1986).

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[2] Potential access is described by factors that influence the demand for and supply of health care services, including characteristics of need, demographic characteristics (e.g., age, education, and race/ethnicity), economic status (such as income and insurance coverage), and provider availability. Realized access is measured by the utilization patterns of the population and their satisfaction with care received

[3] Equitability of access reflects the extent to which services are allocated according to need. Inequitable access occurs when services are distributed according to such demographic characteristics as race, family income, or place of residence, as opposed to need.

[4] Weighted means and proportions and their associated standard errors were generated with PROC DESCRIPT. All means and proportions are age adjusted using the direct method of standardization. T-tests were performed in Excel, using the weighted means and adjusted standard errors. Crosstabulations were performed with PROC CROSSTAB. Chi-square tests are generated by the procedure. Logistic regression analysis was performed with PROC LOGISTIC. Beta coefficients, adjusted standard errors, and adjusted p-values are produced.

The elderly were more likely than the disabled to have close social supports, such as a spouse or child. Over half of the elderly were living with spouse and 87 percent had living children. The disabled were more likely to live with others (such as parents or other relatives as well as unrelated individuals in group homes) and were less likely to have living children (32 percent).

As might be expected, the disabled had a lower-income distribution, with 81 percent having incomes of $20,000 or less per year. By comparison, slightly more than 63 percent of the elderly had annual household incomes of $20,000 or less. Similarly, the availability of supplemental insurance coverage varied, with 30 percent of the disabled but only 11 percent of the elderly having no supplemental coverage. In addition, the disabled were about four times more likely than the elderly to have joint Medicaid eligibility. Three-fourths of the elderly, but only one-third of the disabled, had private Medigap coverage. Most (75 percent) of the noninstitutionalized Medicare population -- elderly and disabled alike -- resided in areas where physicians are expected to experience Medicare payment reductions exceeding one percent.

The disabled were in poorer health than the elderly. About one-fourth of the elderly, versus two-thirds of the disabled, perceived their health as fair or poor. The disabled were more likely to experience limitation of activity as measured by Instrumental Activities of Daily Living (IADL) and Activities of Daily Living (ADL).

Finally, the geographic distribution was fairly similar between the two groups, although the disabled were slightly more likely to reside in rural areas.

Baseline Indicators of Utilization, Access, and Satisfaction

Variations Among the Disabled and Elderly Populations

Table 2 presents self-reported data on utilization, access, and satisfaction from the MCBS for the year prior to the implementation of the MFS. Table 3 contains indicators based on Medicare claims data for those participating in the survey (excluding those enrolled in HMOs). These data provide a baseline for monitoring access to care under the fee schedule. As shown in Table 2, only about 9 percent of Medicare beneficiaries do not have a regular source of care. Those under age 45 were least likely to have a regular source (12.8 percent), while those age 85 and over were most likely. The disabled were considerably less likely than the elderly to consider a physician's office their regular source of care (57 percent versus 69 percent). Instead, the disabled (primarily those under age 45) were far more likely to visit another place, either with or without a regular physician.

Overall, 87 percent of Medicare beneficiaries had at least one visit to a physician in 1991 (based on self-reported data from the survey). There were minor (although significant) differences by age, with the older disabled population having a higher likelihood of a visit than the younger disabled enrollees. Among the elderly, the percent with a visit also increases with age. The locus of care, however, differs dramatically between the two groups. Outpatient department and emergency room use were higher among the disabled than among the elderly, perhaps because of their complex medical care needs or because of other barriers to office-based care. Compared with the elderly, the disabled were, indeed, more likely to report barriers to care, and also more likely to indicate that they encountered financial barriers. In addition, the disabled were more likely to have walk-in visits in all settings, that is, without an appointment, and without a physician telling them to go.

These patterns are confirmed in the Medicare administrative claims data as well (Table 3). In the noninstitutionalized Medicare population, emergency room and outpatient department use were higher among the disabled than the elderly. Use of primary care is higher among the elderly, however. Few differences are noted in the number of visits per user. Where differences are observed, they amount to about one-half visit or less. Hospitalization is higher among the disabled than the elderly. However, within the elderly population, inpatient use increases with age. One-in-five of those age 80 and over had a hospitalization in 1991. The rate of ambulatory care sensitive (ACS) hospitalizations is highest among those age 85 and over, even though this is also the group with the highest level of primary care utilization.[5]

In general, the disabled were less likely than the
elderly to be vaccinated against influenza and pneumonia (Table 2). Lower immunization among the disabled may be a function of less continuity of care resulting from a regular source other

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[5] ACS hospitalizations are considered preventable by good primary care. See Appendix B for more details.

than a physician's office as well as differences in the risk factors between the two groups.[6] Mammography rates, too, were lower among the disabled than among the elderly, while Pap testing occurred more frequently among younger women. In addition, both mammography and Pap smear rates declined with age among elderly women. In general, these findings are consistent with the recommendations of the U.S. Preventive Services Task Force (1989), which recommends mammography every one to two years from age 50 through age 75, unless pathology has been detected, and Pap smears every one to three years through age 65, unless previous cultures were abnormal. However, recent research has questioned whether discontinuing Pap testing among the elderly is cost-effective (Fahs et al., 1992).

Finally, satisfaction with care is consistently and significantly lower among the disabled population than among the elderly. Whereas 95 percent of the elderly were satisfied with the quality and with the availability of medical care, only 88 percent of the disabled were satisfied. Ninety-three percent of the elderly, but only 83 percent of the disabled were satisfied with the ease of getting to the doctor. Satisfaction with the cost of medical care was lowest-rated of the four features, and again, there was about a 10-point spread in the level of satisfaction between the elderly (71 percent) and disabled (60 percent).

Variations by Demographic Characteristics

Tables 4 and 5 compare utilization, access, and satisfaction by gender and race/ethnicity. The figures are age-adjusted (using the direct method of standardization) to take into account variations in the age distribution within subgroups. Males and females exhibited few differences in health care utilization. Although women were more likely to see a physician in 1991 and more likely to report a physician's office as the usual source of care, they were more likely to report a barrier to obtaining care, and were slightly less satisfied with the ease of getting to the doctor.

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[6] The U.S. Preventive Services Task Force (1989) recommends that pneumococcal vaccination be provided at least once to those ages 65 and over, as well as those with medical conditions that increase the risk of pneumococcal infection, such as chronic cardiac or pulmonary disease, renal disease, diabetes mellitus, alcoholism, and cirrhosis. Influenza vaccine is recommended for those ages 65 and over, residents of chronic care facilities, and those with chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression, or renal dysfunction.

Black and Hispanic Medicare enrollees were less likely than white enrollees to visit a physician in a non-hospital setting. A large disparity is noted in the claims analysis, with only 68 percent of black beneficiaries versus 78 percent of white beneficiaries having an office visit or consultation in 1991. Wide gaps are observed for visits to both primary care providers and medical specialists. However, use of emergency rooms and outpatient departments was more common among black beneficiaries than others. Moreover, black and Hispanic beneficiaries were more likely to arrive at the emergency room without an "appointment" or referral by a physician. These patterns are likely a function of their type of regular source. Not only were black and Hispanic beneficiaries less likely to have a regular source, but they were less likely to have a regular physician (whether in an office or other setting). Black beneficiaries had the highest rates of admissions for ambulatory care sensitive conditions, consistent with the lower rates of primary care use within this population.

Black, Hispanic, and other beneficiaries were more likely than white beneficiaries to express dissatisfaction with the ease of getting to the doctor, perhaps because they were less likely to have a regular physician. Black and Hispanic beneficiaries were also less likely to have been immunized for influenza and pneumonia. However, there were no differences in the rate of mammography and Pap testing by race/ethnicity. Black beneficiaries and individuals of other races were more likely to report barriers to care, and moreover, to indicate that they encountered financial barriers. In contrast, Hispanic beneficiaries who reported barriers were more likely to indicate nonfinancial barriers.[7] This is consistent with their above-average satisfaction with the costs of medical care.

The likelihood of physician use varies according to the level of an individual's education (data not shown). In particular, education level is strongly associated with use of preventive services. For example, nearly half of those with post-high-school education had an influenza vaccine the previous winter compared with only one-third of those with less than six years of education. The differences were even more dramatic for preventive use by women -- 47 percent of the most educated versus 29 percent of the least educated had a mammogram in the previous year. Use of Pap smears exhibited a 24-point spread. Grossman et al. (1980) posit that more educated individuals are more efficient in the production of health, in part because of the higher use of preventive services.

Variations by Economic Status

Physician use in non-hospital settings is lower among those with lower incomes; 80.9 percent of persons with incomes at $10,000 or less reported having a physician visit versus 87.4 percent of persons with incomes above $35,000 (Table 6). However, those with the lowest incomes (23.7 percent) were most likely to visit an emergency room during the year compared to those with the highest income (17.7 percent). Similar patterns were observed with the claims data (Table 7). Higher rates of emergency room use could be a function of not having a regular source of care. Perhaps relatedly, preventive use is lower among those with lower incomes and barriers to care are more prevalent. For example, 30 percent of females with the lowest income report having had a mammogram versus 53 percent of females with the highest income (Table 6). Among those experiencing a barrier, financial barriers were far more likely among the lowest income than the highest income group (60 percent versus 38 percent). Lower income enrollees were also less satisfied with the quality, costs, and convenience of medical care. Despite these variations, there were no differences in the likelihood of being hospitalized overall or specifically for an ambulatory care sensitive condition.

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[7] Nonfinancial barriers include "could not get appointment,"no way to get to doctor," and "fear of what is wrong."

Those with public or private supplemental insurance coverage were far more likely to see a physician than those with no supplemental coverage. Seventy-five percent of those with Medicare only made at least one physician visit to any setting, compared with 88-91 percent of those with supplemental coverage. It is not clear whether this is a function of less "need" for care or less financial access to care. However, other indicators show that they were least likely to have a regular source of care and also more likely to experience a financial barrier. They also have the lowest rating of satisfaction with the costs of care.

Those with dual Medicare and Medicaid coverage had much higher emergency room use than those with Medicare only or with private Medigap coverage. Claims data suggest a two-fold difference in emergency room use and four-fold difference in outpatient department use, between those with Medicaid coverage and those with private supplemental coverage. Again, this could be attributable to poorer health status; nevertheless dual enrollees were most likely to report a nonfinancial access barrier, were least satisfied with the ease of getting to the doctor, and most likely to have a regular place rather than a physician's office for a usual source of care. Admissions for ambulatory care sensitive conditions were two times higher in this group than those with no supplemental coverage.

Use of preventive care is higher by far for those with private Medigap coverage than Medicare only or Medicare and Medicaid. This group is also most likely to have a physician's office for a usual source of care.

Variations by Expected Level of 1992 Medicare Fee Reductions

The baseline analysis also examines the level of utilization, access, and satisfaction according to the expected level of the 1992 Medicare fee reductions. Future analyses will examine whether changes occur disproportionately in areas experiencing large increases or decreases, and the magnitude of change. The level of projected 1992 Medicare fee reductions has been classified into five categories representing low (1-3 percent), medium (3 to 5 percent), and high (5 to 11 percent) reductions, status quo (plus or minus 1 percent), and finally, payment increases exceeding 1 percent. Three-fourths of Medicare beneficiaries reside in areas that are expected to experience more than a 1 percent reduction in fees. Of these, one-third (35 percent) are in areas expecting a low fee reduction; one-fourth (27 percent) are in medium fee reduction areas; and 13 percent are in high fee reduction areas. Of the remainder, 15 percent are in areas that are expected to have increases of 1-10 percent, while the remaining 10 percent reside in areas expecting no more than a 1 percent change in either direction.

The likelihood of any visit as well as a non-hospital visit was highest at baseline in areas expecting the largest decreases (Table 8). According to the claims data, visit rates to medical specialists, in particular, were highest in the areas expecting the greatest fee reductions (Table 9). Conversely, claims data indicate that emergency room use was lowest in these areas, as was the level of hospitalization. The baseline level of satisfaction is slightly lower with respect to the quality of medical care and the ease of getting to the doctor (although both rates still exceed 90 percent).

The areas expecting the greatest fee reduction tend to be the large MSAs in California, Arizona, and Florida -- areas with large numbers of retirees, and with relatively high proportions of beneficiaries who are well off financially. Whether utilization and satisfaction will decline as Medicare payments are reduced will be monitored in future analyses based on the Medicare Current Beneficiary Survey. Moreover, shifts to emergency room settings will be tracked.

In areas that are expecting payment increases, walk-in appointments are highest and mammogram rates are lowest. In addition, enrollees residing in these areas reported the highest rate of barriers to care. Again, the rate of barriers to care will be monitored over time to determine the effects of the MFS.

Table 10 shows baseline attitudes toward the usual source of care according to the level of fee schedule changes expected in 1992. In general, attitudes are extremely positive, with the most agreement concerning physician competency and training. Respondents in areas with the largest expected fee reductions were more likely to report that "their doctor does not discuss health problems," relative to those in areas experiencing little change (plus or minus one percent). In addition, they were most likely to feel that their "doctor acts as if doing a favor," followed by those in areas expected to receive payment increases. Whether physician behavior changes as a result of payment changes, resulting in changes in beneficiary attitudes, remains to be seen.

Variations by Health Status

Health status is generally the strongest predictor of health care utilization. In the MCBS, perceived health status and level of dependency are two measures of health status. As shown in Table 11, the likelihood of any visit, a non-hospital visit, an outpatient department visit, and an emergency room visit, increases as health status declines. As an example, 76 percent of those in excellent health made a visit in the previous year, compared with 94 percent of those in poor health. Similarly, 11 percent of those in excellent health but 39 percent of those in poor health made an emergency room visit. The expectation of an inpatient admission resulting from an emergency room visit also increases as health status declines. Claims data reveal that 8 percent of those in excellent health versus 36 percent of those in poor health had a hospitalization in 1991 (Table 12). The rate of ambulatory care sensitive admissions ranged from 1 percent for those in excellent health to 13.5 percent for those in poor health.

Immunization rates increase as health status decreases, consistent with the guidelines for pneumococcal and influenza vaccination. However, women in poor health were less likely to have a mammogram or Pap smear than those in excellent health.

Barriers to and satisfaction with care also vary with health status. About 1-in-25 enrollees in excellent health reported a barrier, compared with about 1-in-5 of those in poor health. Nonfinancial barriers were more likely the cause of these access problems. Perceptions of quality, availability, convenience, and costs also decline with health status. Eighty percent of those in excellent health were satisfied with costs, compared with only 53 percent of those in poor health.

Variations by Geographic Location

In general, there were few regional differences in physician use (data not shown). However, immunization rates increased moving from east to west. For example, 14.3 percent of those in New England had ever had a pneumonia vaccine, compared to 31.6 percent in the Mountain states and 26.6 percent in the Pacific states. Barriers to care were most often reported in the

South, and these were primarily financial barriers. Satisfaction with care was fairly constant across the country, with minor variations observed for quality of care.

According to the survey data, Medicare enrollees in rural areas more often reported barriers to care than those in urban areas (11.3 versus 8.8 percent). Although claims data reveal a higher likelihood of primary care use, the average number of visits per user was consistently lower among those in rural areas compared with their urban counterparts. With respect to preventive care, women in urban areas were more likely to have received a mammogram in the previous year, perhaps because of accessibility of mammography equipment in urban hospitals or clinics.

Results of Multivariate Analyses

The descriptive analysis provides a one-dimensional view of variations in utilization, access, and satisfaction within the Medicare population, examining a single variable at a time. Such information is useful in discerning overall patterns of use; however, multivariate analysis is required to understand the independent effect of each variable on the likelihood of use. For example, what is the effect of insurance coverage, controlling for age, race, income, and other factors on utilization? Also, what is the baseline indication of the impact of Medicare payment reductions on utilization?

This section illustrates the types of multivariate analyses that will be performed in future reports. Two dependent variables are examined -- the probability of a physician visit to any setting and the probability of an emergency room visit. The model is based on the cumulative logistic probability function and is estimated as the logarithm of the odds that a particular event will occur. Because the equation is expressed in log-likelihood form, the coefficients are not directly interpretable as probabilities.

Table 13 presents the logistic regression coefficients, standard errors (in parentheses), and significance levels for the model predicting the probability of a physician visit in 1991. Equation 1 includes the full model, while equation 2 excludes dummy variables reflecting type of regular source of care. Utilization was hypothesized to be nonlinear with respect to age and indeed this was found to be the case. Age has a U-shaped distribution, such that the probability of use is higher in the disabled population, declines among the "young old," and then turns upward with increasing age. Males were found to have a lower probability of use, ceteris paribus. The race/ethnicity dummy variables were not found to be significant, indicating that when all else is held constant, black and Hispanic beneficiaries do not have a lower likelihood of use than white beneficiaries. This was unexpected given the differences observed in the descriptive analysis. What this suggests is that racial/ethnic differences in utilization may be accounted for by differences in other characteristics controlled for in the regression model. Education level, too, was not found to be significant, all other things being equal. Individuals living with others had a lower probability of use relative to those living with a spouse. The presence of living children did not affect the probability of utilization.

Of particular importance is that income was found to be a significant determinant of the probability of use, independent of insurance coverage and other factors. The two lower-income groups were significantly less likely to see a physician than the highest income group. In addition, Medicare enrollees with supplemental coverage, whether public or private or a combination, were more likely than those with no supplemental coverage to receive care. This analysis provides evidence of the importance of economic factors in determining the utilization of medical care within the Medicare population. Even with the depth of Medicare benefits, income and supplemental insurance remain important determinants of use, ceteris paribus.

As expected, having a regular source of care was positively associated with the probability of use. Because of the potential endogeneity of this variable, the equation was run without the series of dummy variables describing regular source of care (Eq. 2). Only the significance of educational status changes with the inclusion of type of regular source. Whereas education was a significant factor in the decision to seek care within the Medicare population in equation 2, it was not significant when regular source was included in the model. It is likely that the presence and type of regular source may be capturing some aspect of health beliefs or health values or the indirect cost of a visit (i.e., time and information costs associated with finding a provider). Also, the explanatory power of the model increases substantially with the inclusion of regular source. This variable frequently has been considered the second most powerful determinant of physician utilization, following measures of health status (Andersen and Aday, 1976; Andersen, 1975).

Neither of the supply side variables -- physicians per capita and level of the payment change -- were found to be significant in determining the probability of use in the baseline period. The health status variables -- capturing perceived health status and level of dependency -- are consistently strong predictors of the probability of use. Finally, only two of the geographic variables are significant once all of the other variables are held constant. The probability of use is lower in East North Central and East South Central states, relative to the Pacific states. There were no significant differences between urban and rural areas.

Equations 3 and 4 (Table 13) show the determinants of emergency room use. The probability of an emergency room visit was largely a function of the health status of an individual, including both self-reported health status and level of ADL limitations. Age may also be a proxy for health status, exhibiting a U-shaped relationship with age. Whereas women were more likely than men to see a physician overall, emergency room use is higher among men, ceteris paribus.

Emergency room use is also higher among black beneficiaries, controlling for economic factors and physician supply, among other variables. Thus, the multivariate analysis confirms the descriptive analysis (Table 4). In contrast to physician use overall, social supports appear to be a determinant of emergency room use. Those living with others or living alone were more likely to visit an emergency room than those who were married and living with a spouse. Interestingly, presence of children also increased the likelihood of making a visit.

Surprisingly, income was not a significant determinant of emergency room use. Availability of supplemental coverage, however, was a factor, counter to expectations. It was anticipated that lack of supplemental coverage for physician visits might result in delays in seeking care, which might then result in higher emergency room usage. However, these results suggest that higher out-of-pocket liability among those with no supplemental coverage may deter emergency room use.

Those with a regular source, regardless of type, were more likely than those with no regular source to make an emergency room visit. Having a regular source is often indicative of greater health care needs (as demonstrated in Table 11, in which the likelihood of a regular source increased as health status deteriorated). In addition, it may reflect a health belief or favorable attitude toward medical intervention. Interestingly, having a physician's office as a regular source was every bit as positively associated with emergency room use as other regular sources of care.

The expected level of the payment reduction was not a significant determinant in the baseline period. The determinants of emergency room use will be monitored in the transition period to determine whether shifts in the locus of care occur in areas with larger payment reductions.

The determinants of utilization were also examined for blacks and whites separately (data not shown). (Sample sizes were too small to permit separate analysis for Hispanics.) The determinants are reasonably similar between the two groups in the baseline period (although age and gender are nonsignificant for blacks). Future monitoring will assess whether the relative importance of these variables changes during the fee schedule transition and whether the two groups exhibit any differences. Similar analyses will be performed by type of supplemental insurance and by income status, as well as by the size of the payment reduction.

PLANS FOR MONITORING ACCESS IMPACTS

This analysis provides a baseline picture of utilization, access, and satisfaction within the Medicare population, prior to the implementation of the Medicare Fee Schedule. In the year prior to the MFS transition, the likelihood of a visit was highest in areas expecting the biggest payment reductions. Conversely, access barriers were most commonly reported in areas expecting payment increases. Utilization, access, and satisfaction will be monitored annually through the Medicare Current Beneficiary Survey to ascertain the effect of Medicare payment changes on beneficiaries.

Future research will explore whether the Medicare Fee Schedule results in a shift in the locus of care from physician offices to hospital-based settings (ERs or OPDS). In particular, shifts in the regular source of care will be examined, along with comparisons of rates of emergency room and outpatient department use. Do travel and waiting times increase, perhaps indicating increased difficulties in finding a physician that will treat Medicare beneficiaries?

Determinants of use will continue to be monitored through multivariate analyses, to identify changes in the relative importance of various factors. The multivariate analyses will be expanded to encompass a wide range of dependent variables reflecting both the probability of use as well as the volume of visits. While race/ethnicity was found to be a non-significant factor in the baseline period, does it become a significant factor, perhaps if increased out-of-pocket liability falls disproportionately on black beneficiaries (Mitchell and Menke, 1990)? Do income and/or supplemental insurance become more important mediating factors, if physicians shift supply from Medicare beneficiaries to private-paying patients? Finally, we will examine the determinants of use according to the actual effects of the MFS to assess whether there are any differences over time in who uses how much medical care. The purpose of this analysis will be to assess the equitability of access within and between time periods according to the actual level of fee reductions.

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TABLE 1

CHARACTERISTICS OF THE NONINSTITUTIONALIZED MEDICARE POPULATION: 1991(a)

	Total (n=11,470)	Disabled (Under Age 65) (n=1,945)	Elderly (Age 65 and Over) (n=9,525)
Age			
Under age 45	3.1	34.3	--
Ages 45-64	6.0	65.7	--
Ages 65-69	27.8	--	30.6
Ages 70-74	25.6	--	28.1
Ages 75-79	18.6	--	20.4
Ages 80-84	11.6	--	12.8
Age 85 and over	7.3	--	8.1
Sex			
Male	42.6	61.3	40.7
Female	57.4	38.7	59.3
Race/Ethnicity			
White	85.5	74.7	86.6
Black	8.8	17.3	7.9
Hispanic	3.8	5.9	3.6
Other	1.9	2.1	1.9
Educational Attainment			
Less than 6 years	11.3	15.6	10.9
6-11 years	32.2	33.2	32.1
12 years	31.3	33.7	31.1
More than 12 years	25.2	17.5	26.0
Living Arrangement			
Living with spouse	53.4	42.5	54.5
Living with others	16.4	36.1	14.4
Living alone	30.2	21.4	31.1
Living Children			
One or more	85.1	68.0	86.8
None	14.9	32.0	13.2

TABLE 1 (continued)

CHARACTERISTICS OF THE NONINSTITUTIONALIZED MEDICARE POPULATION: 1991(a)

	Total (n=11,470)	Disabled (Under Age 65) (n=1,945)	Elderly (Age 65 and Over) (n=9,525)
Income Status			
$10,000 or less	33.2	55.1	30.9
$10,00 to $20,000	32.0	26.3	32.6
$20,001 to $35,000	22.0	13.4	22.9
$35,000 or more	12.8	5.2	13.6
Insurance Coverage			
Medicare only	12.8	30.1	11.0
Medicare and Medicaid	8.7	27.3	6.8
Medicare and Private Coverage	72.9	35.1	76.7
Medicare and other Coverage	5.6	7.5	5.4
Medicare Fee Schedule Payment Change, 1992			
-11 to -5 percent	13.2	9.9	13.5
-5 to -3 percent	26.5	27.7	26.4
-3 to -1 percent	35.4	34.0	35.5
-1 to +1 percent	10.0	10.4	9.9
1 to 10 percent	15.0	18.1	14.7
Perceived Health Status			
Excellent	16.8	5.3	17.9
Very Good	23.5	9.2	24.9
Good	29.2	20.0	30.1
Fair	20.0	30.4	19.0
Poor	10.5	35.1	8.1
Level of Dependency			
None	54.8	18.4	58.4
IADLS only	7.0	19.7	5.8
1-2 ADLs	25.1	34.4	24.1
3-4 ADLs	8.9	17.7	8.0
5-6 ADLs	4.3	9.8	3.7

TABLE 1 (continued)

CHARACTERISTICS OF THE NONINSTITUTIONALIZED MEDICARE POPULATION: 1991(a)

	Total (n=11,470)	Disabled (Under Age 65) (n=1,945)	Elderly (Age 65 and Over) (n=9,525)
Census Division			
New England	3.3	2.7	3.4
Middle Atlantic	19.0	17.0	19.2
East North Central	17.9	17.7	17.9
West North Central	6.2	5.3	6.3
South Atlantic	19.7	23.2	19.4
East South Central	5.4	8.4	5.1
West South Central	9.9	9.2	9.9
Mountain	5.4	5.5	5.4
Central	13.2	11.0	13.5
Urbanicity			
Urban	74.0	70.2	74.4
Rural	26.0	29.8	25.6

(a) The weighted population projection is 30.15 million Medicare beneficiaries, of which 2.74 million enrollees are under age 65 and 27.41 million enrollees are ages 65 and over.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 2

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY AGE: 1991

		UNDER AGE 65			AGES 65 AND OVER					
	Total	Total	Under Age 45	Ages 45-64	Total	Ages 65-69	Ages 70-74	Ages 75-79	Ages 80-84	Age 85 and Over
Type of Regular Source										
Physician's office	67.8 %	57.1 %*	47.6 %**	62.1 %	68.8 %	66.2 %	66.6 %	70.9 %**	72.7 %**	75.5 %**
Other place with regular physician	19.1	24.7 *	27.8 **	23.1	18.8	19.6	19.4	18.1	16.9	15.4
Other place with no regular physician	4.5	9.5 *	11.7 **	8.3 **	4.0	4.5	4.5	3.8	2.9 **	2.6 **
None	8.8	8.7	12.8 **	6.5 **	8.6	9.7	9.5	7.2 **	7.5 **	6.6 **
Physician Use										
Percent with physician visit (any setting)	86.8	87.0	85.1	88.0 **	84.8	86.1	88.0 **	89.8 **	89.1 **	90.0 **
Percent with physician visit (other than home or hospital)	84.1	82.2 *	77.6 **	84.8 **	84.3	81.9	83.5	85.5 **	88.1 **	86.5 **
Of those with physician visit										
percent with no appointment	6.6	9.4 *	10.5 **	8.9	6.3	7.5	6.3	5.9	5.5 **	4.0 **
Outpatient Department Use										
Percent with OPD visit	27.1	34.1 *	34.8 **	33.7 **	26.4	28.1	28.2	26.7	22.1 **	19.2 **
Of those with OPD visit:										
percent with no appointment	12.9	16.9 *	21.7 **	14.3	12.5	13.2	13.0	11.7	11.3	11.2
Emergency Room Use										
Percent with ER visit	19.6	30.5 *	33.0 **	29.2 **	18.5	15.7	17.2	19.0	22.0 **	26.1 **
Of those with ER visit:										
percent with no appointment	62.2	68.4 *	72.0 **	66.6	61.6	62.2	63.5	59.4	61.4	58.4
percent admitted to hospital	44.2	37.9 *	33.3	40.4	44.8	38.4	44.1	48.4	49.0 **	55.6 **
Preventive Use										
Percent with flu shot in previous winter	41.4	25.4 *	14.8 **	30.9 **	43.0	36.9	43.1	47.8 **	48.2 **	45.0 **
Percent who ever had pneumonia vaccine	21.3	16.4 *	9.5 **	20.0	21.8	18.1	23.2	25.4 **	22.8 **	20.1 **
Percent of women with mammogram in previous year	38.0	32.6 *	19.7 **	39.3 **	38.5	46.6	43.4	34.7 **	27.7 **	17.6 **
Percent of women with Pap smear in previous year	47.1	55.3 *	51.2	57.4	46.2	55.5	52.5	42.9 **	32.1 **	20.0 **

TABLE 2 (continued)

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY AGE: 1991

		UNDER AGE 65			AGES 65 AND OVER					
	Total	Total	Under Age 45	Ages 45-64	Total	Ages 65-69	Ages 70-74	Ages 75-79	Ages 80-84	Age 85 and Over
Barriers to Care										
Percent reporting a health problem and not receiving care	9.4	22.9 *	21.1 **	23.8 **	8.1	10.1	7.0 **	8.0 **	6.9 **	6.0 **
Of those, percent reporting a financial barrier	54.7	68.2 *	64.3	70.3 **	53.4	58.8	59.2	44.9 **	53.4	33.5 **
Satisfaction with Care										
Percent satisfied with:										
Quality of medical care	94.3	88.2 *	87.1 **	88.7 **	94.9	95.3	94.9	94.7	94.5	94.6
Availability of medical care	94.0	88.2 *	86.3 **	89.2 **	94.8	93.5	95.0	95.0 **	95.1 **	95.3 **
Ease of getting to doctor	92.2	83.1 *	82.7 **	83.3 **	93.2	94.5	93.5	92.5 **	91.7 **	90.6 **
Costs of medical care	70.3	60.2 *	66.3	57.0 **	71.3	69.8	70.4	73.3 **	72.6	73.8 **

*Significantly different from ages 65 and over ($p<0.05$).

**Significantly different from ages 65-69 ($p<0.05$).

Note: Age-adjusted using the direct method of standardization.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 3

UTILIZATION INDICATORS FROM CLAIMS, BY AGE: 1991

		UNDER AGE 65			AGES 65 AND OVER					
	Total	Total	Under Age 45	Ages 45-64	Total	Ages 65-69	Ages 70-74	Ages 75-79	Ages 80-84	Age 85 and Over
Office Visits and Consultations										
Percent with visit to an MD	77.2 %	65.9 %*	57.5 %**	70.2 %**	78.4 %	74.8 %	77.0 %	80.7 %**	83.9 %**	82.1 %**
Mean number of visits per user	6.5	6.7	5.9	7.1 **	6.5	6.1	6.4	7.0 **	6.8 **	6.4
Percent with visit to a primary care MD (1)	62.5	49.3 *	39.9 **	54.2 **	63.8	60.2	62.3	65.7 **	70.3 **	67.8 **
Mean number of visits per user	4.8	5.1	5.0	5.2 **	4.8	4.6	4.6	5.0 **	5.1 **	5.1 **
Percent with visit to a medical specialist MD (2)	19.3	15.7 *	9.5 **	18.9	19.7	18.5	20.2	22.9 **	19.4	15.0 **
Mean number of visits per user	3.2	3.4	3.2	3.5	3.1	3.0	3.3	3.2	3.0	2.9
Percent with visit to other specialist MD	42.8	35.7 *	31.4 **	37.9	43.5	39.6	43.6 **	46.9 **	47.0 **	43.3 **
Mean number of visits per user	3.3	3.9 *	3.4	4.1 **	3.3	3.2	3.2	3.4	3.3	3.2
Percent with visit to a non MD (3)	9.0	4.8 *	2.8 **	5.9	9.4	7.2	8.3	10.9 **	12.1 **	13.8 **
Mean number of visits per user	2.2	2.1	2.3	2.0	2.2	2.0	2.4	2.1	2.4	2.4
Emergency Room Visits										
Percent with emergency room visit	13.7	22.9 *	26.9 **	20.9 **	12.8	11.1	12.1	12.8	16.1 **	16.4 **
Outpatient Department Visits										
Percent with outpatient department visit	5.1	10.1 *	11.2 **	9.5 **	4.7	4.6	5.5	4.2	4.3	3.9
Hospitalizations										
Percent with hospitalization	16.4	18.4 *	18.9 **	18.2 **	16.2	12.5	15.5 **	17.0 **	20.9 **	22.9 **
Percent with ACS condition	4.2	4.7	2.6	5.8 **	4.1	2.8	3.7	5.2 **	4.6 **	6.9 **

*Significantly different from ages 65 and over (p<0.05).

**Significantly different from ages 65-69 (p<0.05)

(1) General Practice, Family Practice, Internal Medicine, Osteopathy

(2) Allergy, Cardiology, Dermatology, Gastroenterology, Pulmonary, Geriatrics, Nephrology, Infectious Disease, Endocrinology, Rheumatology, Oncology

(3) Dentist Chiropractor Optometrist Nurse Anesthetist Podiatrist, Physical Therapist, Occupational Therapist

Source Medicare NCH Claims for Noninstitutionalized MCBS Population Primary analysis by the Center for Health Economics Research

TABLE 4

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY SEX AND RACE/ETHNICITY: 1991

	SEX		*RACE/ETHNICITY*			
	Male	Female	White	Black	Hispanic	Other
Type of Regular Source						
Physician's office	63.2 %*	71.1 %	69.7	55.5 **	56.5 %**	60.2 %**
Other place with regular physician	20.6	18.0	18.5	23.3 **	23.0	21.6
Other place with no regular physician	6.4 *	3.1	3.7	10.4 **	5.2	9.8 **
None	9.7 *	7.8	8.1	10.8 **	15.3 **	8.4
Physician Use						
Percent with physician visit (any setting)	84.9 *	88.4	87.2	85.2	80.0	90.3
Percent with physician visit (other than home or hospital)	81.3 *	86.3	84.8	79.7 **	75.7 **	87.0
Of those with physician visit:						
percent with no appointment	7.4 *	5.9	5.9	10.0 **	12.3 **	11.9 **
Outpatient Department Use						
Percent with OPD visit	27.5	27.0	26.9	28.9	23.4	27.4
Of those with OPD visit:						
percent with no appointment	13.9	12.1	12.7	12.8	20.8	10.5
Emergency Room Use						
Percent with ER visit	19.9	19.4	18.8	25.9 **	19.4	22.2
Of those with ER visit:						
percent with no appointment	64.1	60.8	60.6	68.2 **	74.2 **	67.4
percent admitted to hospital	47.7 *	41.1	43.9	43.3	44.9	50.0
Preventive Use						
Percent with flu shot in previous winter	42.4	40.7	43.2	25.8 **	33.9 **	33.6 **
Percent who ever had pneumonia vaccine	21.9	20.9	22.8	10.4 **	16.5	16.8 **
Percent of women with mammogram in previous year	N/A	38.0	38.2	35.3	37.7	33.8
Percent of women with Pap smear in previous year	N/A	47.1	47.5	44.5	44.4	41.7
Barriers to Care						
Percent reporting a health problem and not receiving care	7.8 *	10.8 *	9.0	11.5 **	11.1	15.9 **
Of those, percent reporting a financial barrier	53.8	55.0	53.6	67.3 **	37.4 **	69.4 **
Satisfaction with Care						
Percent satisfied with:						
Quality of medical care	94.4	94.2	94.8	92.8	93.9	89.1 **
Availability of medical care	93.7	94.2	93.8	95.1	96.0 **	91.4
Ease of getting to doctor	93.7 *	91.2	93.0	88.1 **	86.8 **	85.2 **
Costs of medical care	71.4	69.8	70.7	63.8 **	75.1 **	71.2

*Significantly different from females ($p<0.05$).

**Significantly different from whites ($p<0.05$).

N/A = not applicable.

Note: Age-adjusted using the direct method of standardization.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 5

UTILIZATION INDICATORS FROM CLAIMS, BY SEX AND RACE/ETHNICITY: 1991

	SEX		*RACE/ETHNICITY*			
	Male	Female	White	Black	Hispanic	Other
Office Visits and Consultations						
Percent with visit to MD	73.6 %*	80.2 %	78.5	68.2 %*	72.2	70.8 %**
Mean number of visits per user	6.4	6.6	6.4	6.7	7.2	7.0
Percent with visit to primary care MD (1)	57.8 *	66.1	63.6	53.3 **	60.8	54.9 **
Mean number of visits per user	4.6 *	4.9	4.7	5.6 **	5.2	5.6
Percent with visit to medical specialist MD (2)	20.5	18.7	20.1	12.6 **	16.3	17.4
Mean number of visits per user	3.2	3.1	3.1	4.1 **	3.9	3.4
Percent with visit to other specialist MD	7.7 *	9.9	9.1	8.3	8.9	7.0
Mean number of visits per user	3.3	3.3	3.3	3.3	3.9	3.7
Percent with visit to non-MD (3)	41.9	44.0	44.1	33.4 **	36.6 *	37.4
Mean number of visits per user	2.1	2.2	2.2	2.2	1.8	2.8
Emergency Room Visits						
Percent with emergency room visit	12.7 *	14.5	13.2	17.8 **	12.5	16.5
Outpatient Department Visits						
Percent with outpatient department visit	4.6	5.6	4.2	10.9 **	8.0 *	14.0 **
Hospitalizations						
Percent with hospitalization	17.6 *	15.6	16.3	18.4	13.6	14.5
Percent with ACS condition	4.4	4.0	3.9	6.0 *	6.6	2.8

*Significantly different from females (p<0.05).

**Significantly different from whites (p<0.05).

(1) General Practice, Family Practice, Internal Medicine, Osteopathy

(2) Allergy, Cardiology, Dermatology, Gastroenterology, Pulmonary, Geriatrics, Nephrology, Infectious Disease, Endocrinology, Rheumatology, Oncology

(3) Dentist, Chiropractor, Optometrist, Nurse Anesthetist, Podiatrist, Physical Therapist, Occupational Therapist

Source: Medicare NCH Claims for Noninstitutionalized MCBS Population, Primary analysis by the Center for Health Economics Research.

TABLE 8

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY INCOME AND SUPPLEMENTAL COVERAGE: 1991

	INCOME				SUPPLEMENTAL COVERAGE			
	$10,000 or less	$10,001 to $20,000	$20,001 to $35,000	$35,001 or more	None	Medicaid	Private	Other or Combination
Type of Regular Source								
Physician's office	64.6 %	67.9 %	68.5 %	72.2 %	51.3 %	61.9 %**	71.3 %**	68.0 **
Other place with regular physician	18.5	20.5	20.5	17.2	19.3	20.7	18.7	21.3
Other place with no regular physician	6.3	3.8	3.6	4.0	10.8	8.0 **	2.9 **	4.9 **
None	10.6	7.8	7.3	6.5	18.6	9.3 **	7.0 **	5.8 **
Physician Use								
Percent with physician visit (any setting)	84.1 *	88.6 *	89.2	89.7	74.8	88.1 **	88.4 **	90.7 **
Percent with physician visit (other than home or hospital)	80.9 *	83.7 *	88.7	87.4	68.8	84.6 **	86.5 **	88.9 **
Of those with physician visit:								
percent with no appointment	9.7 *	5.9	5.2	4.2	13.0	10.2	5.4 **	5.2 **
Outpatient Department Use								
Percent with OPD visit	26.2 *	27.8	28.1	29.7	26.0	27.4	26.8	31.1 **
Of those with OPD visit:								
percent with no appointment	14.9 *	13.9 *	12.8	9.3	19.4	17.1	11.4 **	18.9
Emergency Room Use								
Percent with ER visit	23.7 *	19.0	18.3	17.7	19.3	26.3 **	18.4	27.0 **
Of those with ER visit:								
percent with no appointment	63.6	60.6	63.5	57.1	66.4	63.3	61.8	53.7 **
percent admitted to hospital	47.1	43.6	42.8	42.1	45.3	51.3	42.4	53.4
Preventive Use								
Percent with flu shot in previous winter	33.2 *	41.4 *	47.2 *	53.5	26.9	30.2	44.6 **	41.0 **
Percent who ever had pneumonia vaccine	18.7 *	21.0 *	24.4	28.0	15.1	12.0	23.1 **	20.8 **
Percent of women with mammogram in previous year	30.0 *	37.3 *	45.3 *	53.0	23.1	30.0 **	41.0 **	38.7 **
Percent of women with Pap smear in previous year	37.5 *	49.1 *	56.5	59.6	27.5	35.8 **	51.6 **	41.6 **
Barriers to Care								
Percent reporting a health problem and not receiving care	15.1 *	9.7 *	6.9 *	4.2	13.9	18.2 **	7.7 **	11.6
Of those, percent reporting a financial barrier	60.2 *	51.6	43.9	38.3	63.8	48.1 **	52.7 **	60.8
Satisfaction with Care								
Percent satisfied with:								
Quality of medical care	92.9 *	94.2 *	95.3	96.2	93.5	94.1	94.7	91.1
Availability of medical care	94.1	93.9	94.8	93.2	94.7	95.1	93.9	92.2
Ease of getting to doctor	88.1 *	92.5 *	95.1	95.2	90.7	84.5 **	93.5 **	89.4
Costs of medical care	66.7 *	67.2 *	74.4	77.4	63.4	79.9 **	70.2 **	68.3

*Significantly different from those with incomes over $35,000 (p<0.05).

**Significantly different from those with Medicare coverage only (p<0.05).

Note: Age-adjusted using the direct method of standardization.

Source: Medicare Current Beneficiary Survey, Round 1 Data. Primary analysis by the Center for Health Economics Research.

TABLE 7

UTILIZATION INDICATORS FROM CLAIMS, BY INCOME AND SUPPLEMENTAL COVERAGE: 1991

	INCOME				*SUPPLEMENTAL COVERAGE*			
	$10,000 or less	$10,001 to $20,000	$20,001 to $35,000	$35,001 or more	None	Medicaid	Private	Other or Combination
Office Visits and Consultations								
Percent with visit to MD	75.0 %*	77.6 %	77.4 %	79.7 %	61.9 %	82.6 %*	79.1 %*	76.4 %**
Mean number of visits per user	6.8 *	6.5	6.4	6.2	5.3	8.0 **	6.4 **	8.0 **
Percent with visit to primary care MD (1)	61.8	63.5	62.3	62.6	48.0	67.7 **	64.3 **	61.0 **
Mean number of visits per user	5.2 *	5.0 *	4.6 *	4.0	4.4	6.0 **	4.7	6.0 **
Percent with visit to medical specialist MD (2)	15.0 *	17.8 *	23.1	25.4	11.2	18.1 **	20.9 **	18.4 **
Mean number of visits per user	3.5	3.1	3.1	3.1	2.8	4.2 **	3.1	3.5
Percent with visit to other specialist MD	38.3 *	41.6 *	45.2 *	51.2	27.1	43.8 **	45.3 **	45.1 **
Mean number of visits per user	3.5	3.3	3.0	3.4	3.1	4.1 **	3.2	3.9 **
Percent with visit to non-MD (3)	8.4	8.9	9.5	9.9	5.4	10.3 **	9.2 **	12.1 **
Mean number of visits per user	2.1	2.2	2.3	2.3	2.1	2.2	2.2	2.2
Emergency Room Visits								
Percent with emergency room visit	17.7 *	13.4	11.3	11.5	12.8	22.5 **	12.3	16.8 **
Outpatient Department Visits								
Percent with outpatient department visit	7.4 *	5.1 *	3.3	3.0	6.3	11.6 **	3.9 **	8.6
Hospitalizations								
Percent with hospitalization	17.9	16.6	15.4	15.4	12.1	23.3 **	15.7 **	24.8 **
Percent with ACS condition	5.3	4.2	3.7	3.6	3.0	7.2 **	3.8	8.4 **

*Significantly different from those with incomes over $35,000 (p<0.05).

**Significantly different from those with Medicare coverage only (p<0.05).

(1) General Practice, Family Practice, Internal Medicine, Osteopathy
(2) Allergy, Cardiology, Dermatology, Gastroenterology, Pulmonary, Geriatrics, Nephrology, Infectious Disease, Endocrinology, Rheumatology, Oncology
(3) Dentist, Chiropractor, Optometrist, Nurse Anesthetist, Podiatrist, Physical Therapist, Occupational Therapist

Source: Medicare NCH Claims for Noninstitutionalized MCBS Population, Primary analysis by the Center for Health Economics Research

TABLE 8

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY EXPECTED LEVEL OF 1992 MEDICARE FEE SCHEDULE CHANGES 1991

	5 to 11% Reduction	3 to 6% Reduction	1 to 3% Reduction	Plus or Minus 1% Change	1 to 10% Increase
Type of Regular Source					
Physician's office	67.7 %	65.3 %	68.6 %	61.8 %	74.3 %*
Other place with regular physician	19.4	19.6	19.1	26.0	13.5 *
Other place with no regular physician	4.9	5.3	4.1	4.3	3.7
None	8.0	9.6	8.2	8.0	8.5
Physician Use					
Percent with physician visit (any setting)	89.4 *	85.3	87.6	85.9	86.1
Percent with physician visit (other than home or hospital)	86.9 *	82.1	85.3	82.6	83.4
Of those with physician visit:					
percent with no appointment	3.6	8.1 *	5.9	4.8	9.3 *
Outpatient Department Use					
Percent with OPD visit	25.6	25.5	26.3	30.3	30.4
Of those with OPD visit:					
percent with no appointment	11.6	13.3	12.9	14.0	13.0
Emergency Room Use					
Percent with ER visit	16.0	19.3	20.0	20.5	20.0
Of those with ER visit:					
percent with no appointment	58.5	60.4	68.3	62.3	58.9
percent admitted to hospital	46.2	46.5	45.1	44.3	35.7
Preventive Use					
Percent with flu shot in previous winter	40.2	39.1 *	42.3	43.9	42.3
Percent who ever had pneumonia vaccine	21.8	20.5	19.9	24.4	23.8
Percent of women with mammogram in previous year	44.8	36.8	37.7	41.5	32.5 *
Percent of women with Pap smear in previous year	54.9 *	45.4	45.7	47.9	45.3
Barriers to Care					
Percent reporting a health problem and not receiving care	8.4	9.7 *	9.4	7.8	10.9 *
Of those, percent reporting a financial barrier	47.5	55.8	56.2	43.1	59.0
Satisfaction with Care					
Percent satisfied with:					
Quality of medical care	93.5 *	94.0	94.6	95.8	94.0
Availability of medical care	93.4	93.8	94.2	94.6	94.3
Ease of getting to doctor	90.8 *	91.8 *	92.4	94.3	92.5
Costs of medical care	72.1	71.1	69.1 *	72.7	69.1

*Significantly different from those in areas with plus or minus 1 percent change in Medicare fees ($p<0.05$).

Note: Age-adjusted using the direct method of standardization.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 9

UTILIZATION INDICATORS FROM CLAIMS, BY EXPECTED LEVEL OF 1992 MEDICARE FEE SCHEDULE CHANGES: 1991

	5 to 11% Reduction	3 to 5% Reduction	1 to 3% Reduction	Plus or Minus 1% Change	1 to 10% Increase
Office Visits and Consultations					
Percent with visit to MD	73.1 %	75.4 %	78.5 %	77.2 %	81.1 %*
Mean number of visits per user	7.2 *	6.3	6.6	6.3	6.0
Percent with visit to primary care MD (1)	59.6	59.5 *	63.1	65.9	66.5
Mean number of visits per user	5.1	4.7	4.8	4.9	4.5
Percent with visit to medical specialist MD (2)	24.0 *	19.4	18.5	17.2	18.3
Mean number of visits per user	3.4 *	3.2	3.3 *	2.7	2.9
Percent with visit to other specialist MD	39.8	40.6	45.8 *	41.5	43.2
Mean number of visits per user	3.5 *	3.4 *	3.4 *	2.8	3.2
Percent with visit to non-MD (3)	11.8 *	7.9	10.4 *	5.8	7.3
Mean number of visits per user	2.8 *	2.3	2.0	2.0	2.0
Emergency Room Visits					
Percent with emergency room visit	11.3 *	12.8	14.0	15.4	15.6
Outpatient Department Visits					
Percent with outpatient department visit	3.1	6.1	5.4	5.6	4.5
Hospitalizations					
Percent with hospitalization	13.6 *	16.8	16.8	16.3	17.4
Percent with ACS condition	4.1	4.3	3.9	4.7	4.2

*Significantly different from those in areas with plus or minus 1 percent change in Medicare fees ($p<0.05$)

(1) General Practice, Family Practice, Internal Medicine, Osteopathy

(2) Allergy, Cardiology, Dermatology, Gastroenterology, Pulmonary, Geriatrics, Nephrology, Infectious Disease Endocrinology, Rheumatology, Oncology

(3) Dentist, Chiropractor, Optometrist, Nurse Anesthetist, Podiatrist, Physical Therapist, Occupational Therapist

Source: Medicare NCH Claims for Noninstitutionalized MCBS Population, Primary analysis by the Center for Health Economics Research.

TABLE 10

BASELINE ATTITUDES TOWARD THE USUAL SOURCE OF CARE, BY EXPECTED LEVEL OF 1992 MEDICARE FEE SCHEDULE CHANGES: 1991

	All Medicare Beneficiaries	5 to 11% Reduction	3 to 5% Reduction	1 to 3% Reduction	Plus or minus 1% Change	1 to 10% Increase
Doctor is Competent and Well-Trained	98.5 %	98.6 %	98.3 %	98.7 %	98.5 %	98.1 %
Doctor Answers All Questions	95.9	95.3	96.0	96.3	95.8	95.9
Doctor Has Good Understanding of Medical History	95.4	93.7	96.3	95.7	94.3	95.6
Respondent has Great Confidence in Doctor	94.2	93.3	94.5	94.1	94.7	94.4
Doctor Understands Things That are Wrong	93.4	91.4	93.9	94.0	93.1	93.2
Doctor Checks Everything When Examining	92.9	92.5	93.4	93.0	92.3	92.3
Doctor Tells All that Respondent Wants to Know	91.2	90.0	91.9	91.4	91.2	90.1
Respondent Depends on Doctor To Feel Better	85.8	85.5	85.1	85.3	84.8	89.3
Doctor Seems to be in a Hurry	18.2	19.6	18.2	16.9	17.9	20.4
Doctor Does Not Explain Medical Problems	15.7	17.8	15.6	14.8	14.8	16.9
Doctor Does Not Discuss Health Problems	13.0	16.4 *	12.4	12.0	11.6	14.3
Doctor Acts as if Doing a Favor	8.2	9.1 *	8.2	7.5	6.2	11.1 *

*Significantly different from those in areas with plus or minus 1 percent change in expected Medicare fees ($p<0.05$).

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 11

UTILIZATION, ACCESS, AND SATISFACTION INDICATORS, BY PERCEIVED HEALTH STATUS AND LEVEL OF DEPENDENCY: 1991

	PERCEIVED HEALTH STATUS					*LEVEL OF DEPENDENCY*				
	Excellent	Very Good	Good	Fair	Poor	None	IADLs only	1-2 ADLs	3-4 ADLs	5-6 ADLs
Type of Regular Source										
Physician's office	63.6 %	67.5 %	69.6 %*	68.9 %*	67.8 %	66.0 %	63.8 %	69.9 %	73.1 %**	72.9 %**
Other place with regular physician	18.1	19.0	18.9	19.4	21.1	19.3	19.8	19.4	17.8	17.5
Other place with no regular physician	4.6	4.2	4.0	5.0	5.5	4.3	7.1 **	4.5	3.1	5.0
None	13.7	9.3 *	7.6 *	6.7 *	5.6 *	10.3	9.4	6.3 **	6.0 **	4.7 **
Physician Use										
Percent with physician visit (any setting)	76.2	83.6 *	88.3 *	91.8 *	94.2 *	83.2	87.7 **	90.7 **	94.9 **	95.5 **
Percent with physician visit (other than home or hospital)	73.5	80.9 *	85.9 *	88.8 *	91.2 *	80.6	85.3 **	87.7 **	91.9 **	93.8 **
Of those with physician visit: percent with no appointment	7.1	6.4	6.1 *	6.4	6.9	6.3	6.6	7.6	4.9	5.0
Outpatient Department Use										
Percent with OPD visit	19.6	23.8 *	27.3 *	31.3 *	37.5 *	24.1	27.6	31.0 **	35.4 **	37.1 **
Of those with OPD visit: percent with no appointment	12.6	14.0	12.3	13.1	12.1	11.8	19.7 **	14.4	12.7	13.7
Emergency Room Use										
Percent with ER visit	10.6	14.2 *	18.0 *	25.7 *	39.2 *	14.8	19.7	24.2 **	30.5 **	37.1 **
Of those with ER visit:										
percent with no appointment	69.0	61.3	63.6	60.5 *	56.3 *	66.1	66.1	59.7	57.6	55.9
percent admitted to hospital	25.1	38.9 *	39.7 *	47.5 *	57.9 *	36.9	49.2 **	47.3 **	55.5 **	56.7 **
Preventive Care										
Percent with flu shot in previous winter	36.6	40.2 *	41.5 *	42.6 *	45.3 *	40.5	42.2	42.1	41.3	47.6 **
Percent who ever had pneumonia vaccine	17.2	20.4 *	20.9 *	22.1 *	28.3 *	20.2	21.6	22.7	22.5	24.3
Percent of women with mammogram in previous year	38.6	41.6	35.6	37.1	31.7 *	40.0	36.5	36.6	37.4	28.4 **
Percent of women with Pap smear in previous year	48.2	50.2	44.6	46.1	39.0 *	48.6	42.6	46.1	45.9	39.9
Barriers to Care										
Percent reporting a health problem and not receiving care	3.8	5.6 *	6.1 *	14.1 *	20.5 *	5.5	11.7 **	12.9 **	19.0 **	19.3 **
Of those, percent reporting a financial barrier	68.3	51.1 *	52.2 *	52.1 *	59.8	56.0	52.4	57.4	59.5	50.4
Satisfaction with Care										
Percent satisfied with:										
Quality of medical care	97.1	95.6 *	95.9 *	92.4 *	86.3 *	96.5	92.2 **	93.3 **	89.4 **	88.6 **
Availability of medical care	96.4	95.2	95.0 *	92.8 *	89.6 *	95.7	91.1 **	92.9 **	89.6 **	88.8 **
Ease of getting to doctor	96.0	94.6	93.4 *	90.0 *	82.7 *	95.6	91.9 **	89.6 **	84.0 **	82.2 **
Costs of medical care	80.3	75.9 *	71.3 *	63.9 *	53.0 *	75.6	67.7 **	65.1 **	55.0 **	59.5 **

*Significantly different from those reporting health as excellent ($p<0.05$).

**Significantly different from those with no ADL/IADL limitations ($p<0.05$).

Note: Age-adjusted using the direct method of standardization.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

TABLE 12

UTILIZATION INDICATORS FROM CLAIMS, BY PERCEIVED HEALTH STATUS AND LEVEL OF DEPENDENCY: 1991

	PERCEIVED HEALTH STATUS					*LEVEL OF DEPENDENCY*				
	Excellent	Very Good	Good	Fair	Poor	None	IADLs only	1-2 ADLs	3-4 ADLs	5-6 ADLs
Office Visits and Consultations										
Percent with visit to MD	67.7 %	74.0 %*	79.0 %	82.0 %*	81.8 %*	73.8 %	78.1 %*	81.8 %**	84.7 %*	80.2 %**
Mean number of visits per user	4.7	5.5 *	6.5 *	7.6 *	9.4 *	5.7	7.1 **	7.4 **	7.8	9.1 **
Percent with visit to primary care MD (1)	51.6	58.8 *	65.3 *	67.8 *	68.1 *	58.5	62.6	67.5 **	69.4 **	66.3 **
Mean number of visits per user	3.6	4.0 *	4.8 *	5.7 *	6.8 *	4.2	5.2 **	5.4 **	5.8 **	7.1 **
Percent with visit to medical specialist MD (2)	14.5	16.9	19.3 *	21.4 *	27.0 *	18.1	23.0 **	20.7 **	22.2 **	20.2
Mean number of visits per user	2.6	2.9	3.1 *	3.5 *	4.1 *	3.0	3.4	3.6 **	3.2	3.1
Percent with visit to other specialist MD	35.9	40.4 *	44.6 *	45.9 *	46.3 *	40.1	40.7	46.7 **	50.7 **	48.4 **
Mean number of visits per user	2.8	3.0	3.3 *	3.7 *	4.1 *	2.1	2.1 **	2.3 **	2.5 **	2.4 **
Percent with visit to non-MD (3)	7.5	8.0	10.2 *	9.4 *	10.0 *	7.9	8.2 **	11.0 **	11.1 **	12.5 **
Mean number of visits per user	2.1	2.1	2.1	2.2	2.3	3.1	3.7	3.8	3.8	4.1
Emergency Room Visits										
Percent with emergency room visit	8.6	10.0	13.5 *	17.5 *	23.9 *	10.6	13.9 **	16.4 **	20.2 **	27.9 **
Outpatient Department Visits										
Percent with outpatient department visit	3.9	3.3	5.6 *	6.6 *	9.0 *	4.1	6.9 **	6.3 **	7.4 **	11.2 **
Hospitalizations										
Percent with a hospitalization	7.8	11.2 *	15.2 *	22.3 *	35.9 *	11.3	18.1 **	20.9 **	29.4 **	42.2 **
Percent with ACS condition	1.0	1.7	3.6 *	6.2 *	13.5 *	2.5	4.7 **	5.7 **	7.5 **	12.7 **

*Significantly different from those reporting health as excellent ($p<0.05$).

**Significantly different from those with no ADL/IADL limitations ($p<0.05$).

(1) General Practice, Family Practice, Internal Medicine, Osteopathy
(2) Allergy, Cardiology, Dermatology, Gastroenterology, Pulmonary, Geriatrics, Nephrology, Infectious Disease, Endocrinology, Rheumatology, Oncology
(3) Dentist, Chiropractor, Optometrist, Nurse Anesthetist, Podiatrist, Physical Therapist, Occupational Therapist

Source: Medicare NCH Claims for Noninstitutionalized MCBS Population, Primary analysis by the Center for Health Economics Research.

TABLE 13

DETERMINANTS OF THE PROBABILITY OF PHYSICIAN UTILIZATION IN THE MEDICARE POPULATION, BY VISIT TYPE: 1991

(Standard Errors in Parentheses)

	Probability of Any Visit		Probability of Emergency Room Visit	
	Eq. (1)	Eq. (2)	Eq. (3)	Eq. (4)
Age	-0.08 (0.02) ***	-0.06 (0.02) ***	-0.08 (0.01) ***	-0.08 (0.01) ***
Age-Squared	0.0005 (0.0002) ***	0.0005 (0.0001) ***	0.0006 (0.0001) ***	0.0006 (0.0001) ***
Sex				
Male	-0.23 (0.07) ***	-0.30 (0.06) ***	0.18 (0.06) ***	0.18 (0.06) ***
(Female omitted)				
Race/Ethnicity				
Black	0.12 (0.13)	0.08 (0.12)	0.29 (0.09) ***	0.30 (0.09) ***
Hispanic	-0.23 (0.23)	-0.27 (0.22)	-0.04 (0.13)	-0.07 (0.13)
Other	0.42 (0.28)	0.27 (0.27)	-0.08 (0.22)	-0.08 (0.22)
(White omitted)				
Educational Status				
Less than 12 years	-0.16 (0.10)	-0.20 (0.09) **	0.02 (0.08)	0.01 (0.08)
12 years	-0.11 (0.11)	-0.18 (0.10) *	-0.08 (0.08)	-0.09 (0.08)
(More than 12 years omitted)				
Living Arrangement				
Living with others	-0.21 (0.12) *	-0.24 (0.12) **	0.14 (0.08) *	0.14 (0.08) *
Living alone	0.11 (0.09)	0.08 (0.08)	0.23 (0.08) ***	0.23 (0.08) ***
(Living with spouse omitted)				
Living Children				
Yes	0.14 (0.12)	0.16 (0.10)	0.24 (0.08) ***	0.25 (0.08) ***
(No living children omitted)				
Income Status				
$10,000 or less	-0.68 (0.16) ***	-0.72 (0.16) ***	-0.09 (0.12)	-0.10 (0.12)
$10,001 to $20,000	-0.44 (0.15) ***	-0.44 (0.14) ***	-0.16 (0.12)	-0.16 (0.11)
$20,001 to $35,000	-0.15 (0.14)	-0.16 (0.13)	-0.08 (0.12)	-0.07 (0.12)
($35,001 and above omitted)				
Supplemental Coverage				
Medicaid	0.63 (0.13) ***	0.83 (0.12) ***	0.22 (0.11) **	0.27 (0.11) ***
Private	0.55 (0.10) ***	0.92 (0.09) ***	0.13 (0.08) *	0.17 (0.08) **
Other or Combination	0.72 (0.18) ***	1.08 (0.17) ***	0.29 (0.11) ***	0.35 (0.11) ***
(No supplemental coverage omitted)				
Regular Source of Care				
Physician's office	2.08 (0.11) ***	– –	0.47 (0.13) ***	– –
Other place with regular physician	2.28 (0.12) ***	– –	0.57 (0.15) ***	– –
Other place without regular phy[illegible]	0.99 (0.15) ***	– –	0.57 (0.17) ***	– –
(No regular source omitted)				
Physicians Per Capita	0.25 (0.34)	0.06 (0.31)	-0.17 (0.25)	-0.17 (0.25)
Medicare Payment Change (1992)	-0.01 (0.01)	-0.01 (0.01)	0.02 (0.01)	0.02 (0.01)
Perceived Health Status				
Very Good	0.50 (0.09) ***	0.57 (0.08) ***	0.30 (0.10) ***	0.31 (0.10) ***
Good	0.83 (0.08) ***	0.93 (0.09) ***	0.54 (0.10) ***	0.55 (0.10) ***
Fair	1.22 (0.12) ***	1.36 (0.11) ***	0.89 (0.12) ***	0.91 (0.12) ***
Poor	1.47 (0.16) ***	1.66 (0.14) ***	1.33 (0.12) ***	1.36 (0.12) ***
(Excellent health status omitted)				

TABLE 13 (continued)

DETERMINANTS OF THE PROBABILITY OF PHYSICIAN UTILIZATION IN THE MEDICARE POPULATION, BY VISIT TYPE: 1991
(Standard Errors in Parentheses)

	Probability of Any Visit				Probability of Emergency Room Visit			
	Eq. (1)		Eq. (2)		Eq. (3)		Eq. (4)	
Level of Dependency								
IADL only	0.33	(0.12) ***	0.33	(0.12) ***	0.14	(0.11)	0.15	(0.11)
1-2 ADLs	0.41	(0.09) ***	0.48	(0.09) ***	0.29	(0.07) **	0.30	(0.07) ***
3-4 ADLs	0.72	(0.15) ***	0.79	(0.15) ***	0.45	(0.09) ***	0.46	(0.08) ***
5-6 ADLs	0.76	(0.21) ***	0.80	(0.22) ***	0.73	(0.11) ***	0.74	(0.11) ***
(No ADL/IADL omitted)								
Geographic Location								
New England	0.28	(0.19)	0.16	(0.18)	0.34	(0.17) **	0.32	(0.17) *
Middle Atlantic	0.002	(0.147)	-0.03	(0.13)	0.05	(0.1)	0.02	(0.1)
East North Central	-0.24	(0.13) *	-0.20	(0.12) *	0.08	(0.12)	0.08	(0.11)
West North Central	-0.24	(0.15) *	-0.20	(0.12) *	-0.23	(0.11) **	-0.22	(0.11) **
South Atlantic	0.16	(0.13)	0.07	(0.12)	-0.04	(0.09)	-0.06	(0.09)
East South Central	-0.44	(0.17) ***	-0.43	(0.14) ***	0.03	(0.11)	0.01	(0.11)
West South Central	-0.24	(0.15)	-0.28	(0.15) *	-0.08	(0.13)	-0.10	(0.13)
Mountain	-0.02	(0.18)	-0.17	(0.14)	0.28	(0.13) **	0.25	(0.12) **
(Pacific omitted)								
Urban	0.12	(0.11)	0.07	(0.1)	0.10	(0.1)	0.10	(0.1)
(Rural omitted)								
Intercept	0.73	(0.6)	2.29	(0.56) ***	-0.56	(0.52)	-0.15	(0.49)
R-squared	0.17		0.08		0.07		0.06	
No.	9,957		9,979		10,023		10,050	
Minus log-likelihood	3236.63 ***		3556.33 ***		4676.41 ***		4702.66 ***	

* Significant at 0.10 level.
** Significant at 0.05 level.
***Significant at 0.01 level.

Source: Medicare Current Beneficiary Survey, Round 1 Data, Primary analysis by the Center for Health Economics Research.

Chapter 7
A Baseline Analysis of Utilization and Access From The National Health Interview Survey, 1984-1990

INTRODUCTION

The purpose of this chapter is to present information from the National Health Interview Survey (NHIS) on utilization of physician services prior to implementation of physician payment reform. The NHIS, an annual household survey of the non-institutionalized U.S. population, collects health status, utilization, and socio-economic information that can be used to monitor trends in access to health care. Use of physician services can be analyzed in the NHIS by important variables such as insurance status, income, and health status, making the NHIS a valuable data source for evaluating the effects of physician payment reform on access.

Because the NHIS collects information on persons of all ages, it permits the comparison of the elderly with the non-elderly. Such a comparison aids in the determination of whether changes are limited to the aged or reflect overall national trends. This chapter contrasts the population over 65 years of age with the population 18-64 years of age.

The 1992 report presented descriptive data for 1984, 1986, and 1989 on trends in use of physician services by health status and socio-demographic categories and geographic area. This report updates the descriptive data with information from the 1990 NHIS. It also presents a multivariate analysis of the trends in use of physician services for the 1984, 1986, and 1989 time period. As more data become available, the analyses in this chapter will be expanded. Changes in the use of physician services for vulnerable groups will be tracked throughout the implementation of physician payment reform.

It should be noted that the NHIS differs from the other survey data source used in this report, the Medicare Current Beneficiary Survey (MCBS). Unlike the MCBS (analyzed in Chapter 6), the NHIS does not include measures of potential access, such as having a regular source of care. However, realized access, that is, use of physician services is well-covered in the NHIS. The NHIS does offer two distinct advantages over the MCBS. First, the NHIS allows comparisons with the non-Medicare population. Second, the NHIS has collected data for many years prior to physician payment reform, whereas the MCBS has only one year of data before physician payment reform.

It should also be noted that the NHIS differs from the Medicare administrative data system. The NHIS has socio-economic and health status information that is not available in the Medicare claims system. A key difference between the NHIS and Medicare claims data complicates their direct comparison. Unlike the NHIS, HCFA program statistics include institutionalized persons.

Unfortunately, in the HCFA data system, use of physician services by institutionalized persons cannot be separated from use of services by the non-institutionalized. Therefore, Medicare program use rates described in chapter 3 of this report are likely to differ from those obtained from the NHIS.

METHODS

Data from the NHIS conducted in 1984, 1986, 1989, and 1990 are used in this chapter because these years had supplemental questions on health insurance coverage. Approximately 41,000 households were interviewed in 1984; 25,000 in 1986; 48,000 in 1989; and 49,000 in 1990. The supplemental questions on health insurance status in the 1990 NHIS were not available in time for this report. Data on health insurance status and income from the 1990 through 1994 surveys, however, will be used in future reports as they become available.

In this chapter, physician use is examined by sociodemographic characteristics, health status, and geographic area (an Endnotes section with definitions and additional information about the NHIS can be found at the conclusion of this chapter). Use of physician services includes telephone contacts with a physician as well as contacts made in person; it does not include contacts while an overnight patient in the hospital. Because the vast majority (about 90 percent) of physician contacts are in person, the term visit will be used rather than contact (it should be noted that contacts in the NHIS also include visits to other than medical doctors).

The focus of the analysis is on vulnerable segments of the Medicare population: persons with low income; Medicare enrollees without any supplemental health insurance; Medicare enrollees also entitled to Medicaid; persons in self-reported poor health, or persons with chronic conditions or activity limitations; racial minorities; and persons residing in rural areas. Use rates by vulnerable segments of the population are measured in several ways: 1) the percent of persons with at least one physician visit in a year; 2) the mean number of visits per person per year; 3) the percent of acute conditions medically attended in a year (i.e resulting in a physician visit); and 4) the proportion of physician visits in a year occurring in physicians' offices (as opposed to other settings such as hospital outpatient departments). Comparisons of these utilization measures are made across population groups (see note number 1 in Appendix G for further discussion). The percent change in use of physician services as measured by the NHIS non-institutionalized population between 1984 and 1990 is presented. When the phrase "use of physician services" is used in the text, it refers to both the percent of persons with a visit and the mean visit rate.

To investigate the independent effects of particular variables on use of physician services while controlling for possible covariates, a multivariate analysis of the 1984-1989 data was conducted using a two-part model (see note number 2 in Appendix G for a further discussion of the two part model). Insurance status from the 1990 NHIS was not available in time; therefore, 1990 data could not be included in the multivariate analysis. To determine whether there was a trend in use of physician services, the stability of the regression coefficients over time was evaluated. The stability of the coefficients was evaluated through pair-wise comparisons of individual coefficients from one year to the next. The null hypothesis is that for a particular variable the coefficient has not changed from one year to the next (see note number 3 in Appendix G for a further discussion of the trend analysis). If the difference between the coefficients for a particular variable is significant, then this suggests that the effect of that variable on physician use has increased or decreased.

DESCRIPTIVE RESULTS

Percent change in physician visit rates, 1984, 1986, 1989, and 1990

Patterns identified in the 1992 Report to Congress did not change in 1990 (Table 1). Use of physician services was higher for persons 65 years of age and over than for persons 18-64 years of age. Likewise, persons 75 and over used slightly more physician services than persons 65-74 years of age. Since 1984, the mean visit rate increased 11.2 percent for the elderly to a rate of 9.2 visits per person in 1990, and by 9.2 percent for the non-elderly to a rate of 5.4 visits per person.

Use of physician services and health status

As described previously (Health Care Financing Administration, 1992), for all three health status measures (self-reported health status, activity limitation, and presence of a chronic condition), use of physician services was highest for persons reporting the poorest health (Table 2). In 1990, 80 percent of elderly persons in excellent/very good health had a physician visit compared with 92 percent of persons in fair/poor health. Similarly, the mean visit rate was 5.5 for elderly persons in excellent/very good health and 15.4 for elderly persons in fair/poor health.

In each of the study years and for both age groups, persons with the most severe activity limitation had a much higher mean visit rate than those without a limitation. Among persons 65 years of age and over, the mean visit rate in 1990 was about 22 visits per person for persons unable to perform their major activity versus 5.9 for persons without an activity limitation.

Not surprisingly, the presence of at least one chronic condition was associated with higher use of physician services. In 1990, elderly persons with a chronic condition had 11.9 visits per person versus 2.3 visits per person for those without a chronic condition.

Use of physician services and sociodemographic characteristics

Since 1990 data on insurance status and income were not available in time for this report, only data on race has been updated from the 1992 Report. The previous report found that for the population 65 years of age and over, the mean visit rate was highest for those with other public program coverage (primarily Medicaid), compared to those with Medicare and other coverage (e.g. Medigap policies), and those with only Medicare. For persons 18-64 years of age, use of physician services was highest for those with public coverage and lowest for the uninsured. For both age groups, the mean visit rate was similar for the poor/low income group (persons with family income at 200 percent or less of the poverty level) and the non-poor group; however, the percent of persons with a visit was lower for the poor/low income group compared to the non-poor group. When all 4 years are combined, the mean visit rate for black persons 65 years of age and over is higher than for white persons (Table 3). The percent of elderly persons with a visit, however, is similar by race.

Use of physician services and geographic area

The mean visit rate tended to be highest in MSA central cities and lowest in non-MSA areas for persons 18-64 years of age (Table 4). There were no other consistent patterns.

Use of physician services by activity limitation and sociodemographic characteristics

As noted earlier, 1990 data on insurance status and income were not available in time for this report. While future reports will provide updated data, the discussion in this section summarizes findings from the previous report. Across all activity limitation groups there were persistent differences in the mean visit rate by insurance status (data not shown). For example, regardless of activity limitation status, persons with Medicare coverage only had the lowest mean visit rate as compared to Medicare enrollees with supplemental insurance.

Acute conditions medically attended

As in the previous report, about three quarters of acute conditions for the elderly and slightly over one half for the younger age group were medically attended (Table 5). Among the elderly, no consistent year-by-year patterns were seen by self-reported health status in the percent of acute conditions medically attended. Among the 18-64 year old population, persons in fair/poor health consistently had a higher percent of acute conditions medically attended. In general, for both age groups, black persons had a higher percent of acute conditions medically attended than white persons (only the differences between blacks and whites 18-64 years of age in 1989 and 1990 were statistically significant).

Proportion of physician visits in physicians' offices

Slightly over half of all physician visits occurred in physicians' offices as opposed to other settings (data not shown), such as hospital outpatient departments and clinics (8 percent) and emergency rooms (3 percent). For persons 65 years of age and over, the proportion of visits in physicians' offices was highest (60 percent) for persons with Medicare and other coverage (primarily Medigap coverage) and about the same for all other Medicare enrollees (49 percent).

MULTIVARIATE RESULTS

Risk of having a physician visit

The descriptive results from the 1992 Report (data now shown) showed that use of physician services was similar for the poor/low income group and the non-poor group. The multivariate analysis, however, showed that when covariates are controlled for, the likelihood of having a physician visit is slightly higher for persons with higher incomes in both age groups (Table 6).

The odds of having a physician visit are higher for females than males, especially for the 18-64 year old group. In 1989, females 18-64 years of age were 2.2 times more likely to have a visit than males; females 65 years of age and over were 1.3 times more likely to have a visit than males. Similar to the descriptive results, for both age groups, the odds of having a physician visit increase markedly as self-reported health status deteriorates and for persons with chronic conditions.

In 1986 and 1989, persons 18-64 years of age residing in non-central city MSA areas were slightly more likely than persons residing in non-MSAs to have a physician visit (odds ratio of 1.09 in 1986 and 1.07 in 1989). In 1989, persons 18-64 years of age in central cities were 1.13 times more likely than non-MSA residents to have a visit. In 1984 the likelihood of a person 18-64 years of age having a visit was about the same for MSA and non-MSA areas.

Unlike the findings from the descriptive analysis, aged persons residing in MSAs were more likely to have a physician visit than persons residing in non-MSA areas in all three study years. For example, in 1989 persons 65 years of age and over residing in non-central city MSAs were 1.27 times more likely to have a physician visit than persons residing in non-MSA areas.

Education appears to have a significant influence on the likelihood of a person 18-64 years of age having a physician visit, with the odds of having a visit increasing with educational level. In 1989, for example, persons 18-64 years of age without a high school diploma were 0.87 times as likely to have a physician visit as persons whose highest educational level was a high school diploma. In contrast, college graduates 18-64 years of age were 1.3 times more likely to have a physician visit than persons whose highest educational level was a high school diploma. There is no clear pattern for the 65 years of age and over group.

For the 18-64 year old group, persons 45-64 were less likely (odds ratio of 0.87 in 1989) to have a physician visit than persons 18-44 years of age. This probably reflects use by females in their childbearing years. The reverse is true for the over age 65 group. Among persons 65 years of age and over, those 75 years of age and over were more likely (odds ratio of 1.29 in 1989) to have a physician visit than those 65-74 years of age.

Among the elderly, persons with supplemental insurance, regardless of whether it is Medicaid (odds ratio of 1.74 in 1989) or private Medigap insurance (odds ratio of 1.79 in 1989) are more likely to visit a physician than persons with only Medicare coverage. Likewise, persons 18-64 years of age with insurance, regardless of the source, are much more likely to have a physician visit than the uninsured. For example, persons 18-64 years of age with private insurance in 1989 were 2 times more likely to have a physician visit than the uninsured.

Level of use of physician visits among users

The income to poverty ratio positively affects the number of physician visits. This effect is not always statistically significant, and when other variables are controlled for, this effect is only slight (Table 7). For example, in 1986 when the income to poverty ratio for a person 65 years of age and over increased from 100 percent of poverty to 300 percent of poverty, there was a corresponding increase of 3.4 percent in the number of physician visits among users.

In each of the study years, females 18-64 years of age had about 23 to 24 percent more visits than males. Among the elderly, females had between 4.7 percent and 6.3 percent more visits than elderly males.

The descriptive results and logistic regression do not reveal consistently significant patterns by race. However, when all other covariates are controlled for, among users 18-64 years of age, blacks consistently used about 12 percent fewer physician visits than whites. This might reflect the higher likelihood of being uninsured among blacks (as compared to whites) under 65 years of age. There was no significant difference between whites and blacks among the elderly population. Among the elderly, blacks and whites are about as likely to lack insurance.

While the odds of having a visit were not always significantly different by activity limitation status, for both age groups and in each of the study years, persons with an activity limitation had more visits than persons without a limitation. For example, persons 65 years of age and over who were unable to perform their major activity had 25.5 percent more visits than persons without an activity limitation in 1989.

Among users of physicians, the level of use is higher for persons of all ages residing in MSA areas compared to persons residing in non-MSA areas. For example, persons 18-64 years of age in central cities used between 5 and 7 percent more visits. Persons 65 years of age and over in central cities used 4.3 percent more in 1989.

In general, the rate of physician visits among person 18-64 years of age increases as educational level increases. This was the same pattern seen for the odds of having a visit. Among the elderly, the only significant difference is for persons with at least a college education. In 1989, for example, elderly persons with a college degree had 6.6 percent more visits than persons whose highest educational level was a high school diploma.

The same pattern seen by age for the risk of having a physician visit was seen for the level of use. Persons 45-64 years of age had fewer visits (10.6 percent in 1989) than persons 18-44 years of age, and persons 75 years of age and over had somewhat more visits (5 percent in 1989) than persons 65-74 years of age.

Aged persons with insurance supplemental to Medicare have more visits than aged persons with only Medicare coverage. The level of use is much higher for persons with Medicare and other public coverage. For example, in 1989, persons 65 years of age and over with Medicare and other public coverage had 22 percent more visits than persons with only Medicare coverage, and persons with Medicare and other coverage had 5.6 percent more visits. Among persons 18-64 years of age, persons with public coverage had between 26 and 33 percent more visits than the uninsured; persons with private coverage had between 8 and 14 percent more visits than the uninsured.

Trends in use of physician services

An analysis of trends in the baseline period is an essential component of monitoring the affects of physician payment reform on access. The relationships of some of the variables in the multivariate analysis to use of physician services bounced around from year to year (Table 8). This discussion will only focus on those variables that showed an increasing or decreasing trend over time in use of physician services. For the logistic regressions, a significant difference between two years for a particular variable indicates a change in the relationship of that variable to the probability of having a visit. For the elderly, only the odds of persons in non-central city MSAs (compared to elderly persons in non-MSAs) having a visit showed a trend over time; the odds ratio significantly declined from 1.5 in 1984 to 1.3 in 1989 (see note number 4 in Appendix G for further discussion of the results).

For the non-elderly, only two variables showed a significant time trend. There was a significant increase between 1984 and 1989 in the odds of having a visit for persons 18-64 years of age residing in MSA central cities compared to persons in non-MSAs (see notes number 5 and 6 in Appendix G for further discussion). For the non-elderly group, the odds ratio corresponding to the income to poverty ratio significantly declined in 1989 compared to the other two years (see note number 7 in Appendix G for further discussion).

For the ordinary least squares regressions, a significant difference between two years for a particular variable indicates a change in the relationship of that variable to the level of use of physician services among users. The models for the level of use among users were more stable over time than the models for the probability of use. For the elderly, income and residence in central city MSAs may have become less important determinants of the number of physician visits over time (see note number 8 in Appendix G for further discussion). For the 18-64 year old group, across the entire time period there were no particular trends for the level of use of physician services.

DISCUSSION

The NHIS was used to examine patterns of use of physician services for several vulnerable groups in the population. For the elderly these may include: persons with low income; Medicare enrollees without any supplemental health insurance; Medicare enrollees dually entitled to Medicaid; persons in self-reported poor health, or persons with chronic conditions or activity limitations; racial minorities; and persons residing in rural areas. For the population 18-64 years of age, the vulnerable group was the uninsured.

The descriptive results indicate that use of physician services increased between 1984 and 1990 for both the elderly and the non-elderly. It is not clear whether these generally increasing trends signal a greater amount of sickness among the non-institutionalized population, improving accessibility to physician services, or more concern about health problems or maybe lower patient out-of-pocket costs for seeing a doctor during this period. The multivariate analysis revealed that the differences by age subcategory within the age groups were stable throughout the years 1984 to 1989. Since it is believed that the old elderly tend to be in poorer health status, use of physician services by this group should be monitored for adverse impacts of physician payment reform.

Both the descriptive results and the multivariate results indicate that health status is a very important determinant of use of physician services, with use of physician services being highest among persons in the poorest health. From the descriptive analysis, it appears that activity limitation is the most sensitive health status measure. In the multivariate analysis, however, self-reported health status was a more important determinant of physician use. It is possible that self-reported health status, activity limitation and presence of a chronic condition are all measuring health status. This could explain why activity limitation was a less important determinant of use in the multivariate analysis than in the descriptive analysis. Across the baseline period 1984-1989, no particular time trends were identified by health status measure in use of physician services. In the post-physician payment reform period, it will be important to monitor the trend in use of physician services by persons in the poorest health, particularly if poor health is accompanied by low income or inadequate insurance coverage. Future analyses will look at use of physician services by especially vulnerable groups, such as elderly persons in poor health who also have low income. Future multivariate analyses will also incorporate a composite health index which reflects all three measures of health status simultaneously.

Access to insurance coverage is also a very important determinant of use of physician services. Insurance reduces the financial barrier to receiving necessary care. Elderly persons with Medicare coverage only and the non-elderly with no insurance use fewer physician services. In the multivariate analysis, no time trends were identified in the baseline period for insurance.

Elderly persons with no supplemental insurance to Medicare may have difficulty paying their out-of-pocket liability. Additionally, the Medicare and other public coverage group contains many medically needy persons who are sicker and expected to require more services. These two groups, therefore, may be more vulnerable to potential access problems. It will be important to monitor use of physician services by persons with only Medicare coverage and persons with Medicare and other public coverage in the post-physician payment reform period.

Income influences use of physician services, both in terms of the probability of having a visit and the level of use. However, when other variables are controlled for, this influence is small for both age groups. It appears that during the baseline period prior to physician payment reform, income became a less important determinant of use of services for the elderly. This trend will need to be evaluated further as more data become available to ascertain whether it continues. Furthermore, the effect of income on use of services for the 18-64 year old group significantly declined in 1989 from the preceding years. This trend will also need to be monitored.

Concern has been expressed that physician payment reform will have a differential effect on certain parts of the United States and research has shown that persons who reside in rural areas may already have less access to health care (Dor and Holahan, 1990). For both age groups, the descriptive results do not reveal any consistent patterns by MSA residence for the time period 1984-1990. The multivariate results (at least for the elderly) reveal that persons in MSAs use slightly more physician visits than persons in non-MSAs. A time trend by MSA residence was identified in the multivariate analysis. For the elderly, the odds of having a visit declined slightly during the study years 1984-1989 for persons residing in non-central city MSAs compared with persons residing in non-MSA areas. In addition, the level of use among elderly users in central cities also declined relative to persons residing in non-MSA areas. This might reflect either increasing use among elderly persons residing in non-MSAs or declining use among elderly persons residing in MSAs. It is important to understand these patterns since it is expected that under physician payment reform, payments for physician visits will increase in rural areas.

Only three data points were used to examine trends in use of physician services. It is quite possible that any trends identified thus far might represent chance occurrences. For this reason it will be critical to monitor these trends as more data become available. It will be particularly important to compare use of physician services in the baseline period with use of physician services in the post-physician payment reform period. The baseline period will ultimately have 5 years of data.

In summary, the NHIS confirms that prior to physician payment reform, health insurance and health status were important determinants of use of physician services. Physician payment reform may affect health insurance determinants (by limitations on balance billing) as well as income (by affecting patients' out-of-pocket liability for physician services). Future analyses using the NHIS should help to identify the impact of physician payment reform on access for vulnerable segments of the Medicare population.

Endnotes

Definitions of socio-demographic characteristics, health status categories, and geographic areas:

SOCIODEMOGRAPHIC CHARACTERISTICS

Insurance coverage:
For the population 65 years of age and over, this chapter categorizes insurance status as Medicare only, Medicare and other public health coverage, Medicare and other insurance, insurance other than Medicare, and unknown or none. Each of these groups is mutually exclusive. The Medicare and other public coverage group primarily includes persons with Medicare and Medicaid. The Medicare and other group primarily includes Medicare enrollees with privately purchased "Medigap" coverage and Medicare enrollees with employer-sponsored supplementary coverage.

For the population 18-64 years of age insurance status was defined as public coverage, insured but not through a public program, uninsured, and unknown. As for the over 65 population, these categories are also mutually exclusive. Public coverage includes Medicare, Medicaid, and any public assistance programs that pay for health care. For both age groups, Medicaid coverage was imputed for persons with Aid to Families with Dependent Children or Supplemental Security Income who did not report

Medicaid coverage. The insurance other than Medicare and the unknown/no coverage groups for the population 65 years of age and over, and the unknown insurance status group for persons 18-64 years of age are included in the totals but are not shown separately in this analysis.

Income:

The NHIS collects information on family income, but in 1989 family income was not reported by 16 percent of all respondents and by about 23 percent of the elderly. Therefore, income was imputed for persons with an unknown value using a model that included family size, race, whether there is a married couple in the family, the number of adults in the family in the labor force, and other variables.

Race:

Race is shown as only white or black in the tables; however, the totals include persons of other race.

HEALTH STATUS

Self-reported health status:

There are five levels of self-reported health status in the NHIS: excellent, very good, good, fair, and poor. For the purposes of this analysis, persons who reported excellent and very good health were combined into one group, and persons who reported fair and poor health were combined into another group.

Activity limitation status:

There are four levels of activity limitation in the NHIS: unable to perform major activity, limited in kind or amount of major activity, limited in other activities, and not limited. The not limited category includes persons with an unknown activity limitation level. For the purpose of this analysis, data for persons with a limitation in kind or amount of major activity or a limitation in other activities have been combined into a category called "limited." A major activity is defined in the NHIS as working or keeping house for persons 18-69 years of age, and capacity for independent living for persons 70 years of age and over.

Chronic and acute conditions:

Chronic conditions are defined by NCHS as conditions with an onset of more than 3 months prior to the interview and a duration of more than 3 months. Certain conditions, such as emphysema, are always considered chronic.

NCHS defines an acute condition as any disease or injury with an onset in the 3-month period prior to the interview. To be included in the survey, the acute condition must have had an impact on behavior, such as causing the person to cut down on his or her usual activity, or must have resulted in contact with a physician.

GEOGRAPHIC AREA

Geographic area was defined in terms of census region: northeast, midwest, south, and west. It was also defined in terms of whether or not the person resided in an MSA. MSAs are further divided into central city and non-central city areas.

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Table 1. Percent of persons with at least one physician visit and mean number of visits per person, by age: 1984, 1986, 1989 and 1990.

	Percent distribution of persons (1)	Percent with a visit				Mean number of visits per person				Percent change 1984-90: Percent with a visit	Percent change 1984-90: Mean number of visits per person
Age	1990	1984	1986	1989	1990	1984	1986	1989	1990		
65 years and over	100.0	82	83	85	86	8.2	9.1	8.9	9.2	4.4	11.2
65-74 years	60.8	81	81	84	84	7.7	8.1	8.2	8.5	3.9	10.6
75 and over	39.2	84	85	88	88	9.1	10.6	9.9	10.1	5.1	11.3
18-64 years	100.0	70	71	72	73	4.9	5.2	5.2	5.4	3.4	9.2

(1) Distribution for the 65 and over population based on 29.8 million persons; distribution for the 18-64 year old population based on 151.7 million persons.

Source: National Health Interview Survey, National Center for Health Statistics.

Table 2. Percent of persons with at least one physician visit and mean number of visits per person, by selected health status measures, and age: 1984, 1986, 1989, and 1990.

Health status and age	Percent distribution of persons (2)	Percent with a physician visit				Mean number of visits per person			
	1990	1984	1986	1989	1990	1984	1986	1989	1990
Self-reported health status									
65 years and over (1)	100.0	82	83	85	86	8.2	9.1	8.9	9.2
Excellent/Very Good	39.8	75	75	80	80	5.4	5.6	5.5	5.5
Good	32.2	82	84	86	87	6.8	7.6	7.7	8.4
Fair/Poor	27.5	90	91	92	92	12.9	14.8	14.7	15.4
18-64 years (1)	100.0	70	71	72	73	4.9	5.2	5.2	5.4
Excellent/Very Good	68.0	67	68	70	70	3.4	3.7	3.7	3.6
Good	22.8	73	74	75	76	5.6	5.6	6.0	6.7
Fair/Poor	8.8	85	85	87	87	12.5	14.8	14.4	15.3
Activity limitation									
65 years and over	100.0	82	83	85	86	8.2	9.1	8.9	9.2
Not limited	62.5	77	77	81	81	5.5	6.0	5.9	5.9
Limited	27.3	89	91	92	92	10.3	11.0	11.6	11.7
Unable to perform major activity	10.2	93	92	95	94	18.3	21.6	19.5	22.3
18-64 years	100.0	70	71	72	73	4.9	5.2	5.2	5.4
Not limited	87.2	68	69	70	70	3.8	4.0	4.0	4.0
Limited	8.3	85	86	86	88	9.8	10.1	9.9	10.9
Unable to perform major activity	4.5	90	90	91	92	17.3	20.3	20.0	21.5
Presence of at least one chronic conditon									
65 years and over	100.0	82	83	85	86	8.2	9.1	8.9	9.2
Yes	71.6	89	89	91	91	11.5	12.6	12.3	11.9
No	28.4	68	69	74	72	1.7	2.0	2.3	2.3
18-64 years	100.0	70	71	72	73	4.9	5.2	5.2	5.4
Yes	37.1	84	84	85	85	10.1	10.7	10.9	10.6
No	62.9	63	64	65	66	2.2	2.2	2.2	2.2

(1) Total includes persons with unknown health status.

(2) Distribution for the 65 and over population based on 29.8 million persons; distribution for the 18-64 year old population based on 151.7 million persons.

Source: National Health Interview Survey, National Center for Health Statistics.

Table 3. Percent of persons with at least one physician visit and mean number of visits per person, by race: 1984, 1986, 1989 and 1990.

	Percent distribution of persons (2)	Percent with a physician visit				Mean number of visits per person			
	1989	1984	1986	1989	1990	1984	1986	1989	1990
65 years and over (1)	100.0	82	83	85	86	8.2	9.1	8.9	9.2
White	90.0	82	83	85	86	8.2	9.1	8.7	9.1
Black	8.4	82	81	85	84	9.8	9.1	11.0	9.7
18-64 years (1)	100.0	70	71	72	73	4.9	5.2	5.2	5.4
White	84.6	71	72	73	73	5.0	5.3	5.3	5.4
Black	11.7	70	69	72	72	4.8	5.2	4.7	5.2

(1) Total includes persons with race listed as "other".

(2) Distribution for the 65 and over population based on 19.8 million persons; distribution for the 18-64 year old population based on 151.7 million persons.

Source: National Health Interview Survey, National Center for Health Statistics.

Table 4. Percent of persons with at least one physician visit and mean number of visits per person, by geographic area and age: 1984, 1986, 1989 and 1990.

Geographic area and age	Percent distribution of persons (1)	Percent with a physician visit				Mean number of visits per person			
	1990	1984	1986	1989	1990	1984	1986	1989	1990
65 years and over	100.0	82	83	85	86	8.2	9.1	8.9	9.2
				Census Region					
Northeast	22.3	82	83	86	86	8.2	8.0	8.6	8.9
Midwest	25.1	80	83	85	86	7.9	8.4	8.3	7.8
South	34.7	83	81	86	85	8.5	9.3	9.8	10.0
West	18.0	83	85	84	85	8.4	11.3	8.2	9.8
				MSA Residence					
MSA central City	30.8	81	82	85	86	9.1	9.6	9.3	8.9
MSA not central city	42.5	85	84	87	86	8.6	8.4	8.8	9.5
Non-MSA	26.7	80	81	84	84	7.3	9.5	8.4	9.0
18 to 64 years	100.0	70	71	72	73	4.9	5.2	5.2	5.4
				Census Region					
Northeast	20.7	71	71	73	75	4.8	4.8	4.9	4.9
Midwest	24.1	70	72	73	74	5.1	5.4	5.3	5.3
South	33.7	70	71	72	71	4.7	4.9	5.2	5.5
West	21.5	70	70	72	72	5.2	5.9	5.4	5.7
				MSA Residence					
MSA central City	31.1	70	70	73	72	5.3	5.7	5.5	5.6
MSA not central city	48.5	71	72	73	74	5.0	5.1	5.0	5.4
Non-MSA	20.5	70	69	71	71	4.4	4.9	5.1	4.9

(1) Distribution for the 65 and over population based on 29.8 million persons; distribution for the 18-64 year old population based on 151.7 million persons.

Source: National Health Interview Survey, National Center for Health Statistics.

Table 5. Percent of acute conditions medically attended by selected characteristics: 1984 to 1990.

Selected characteristic	Year (3)				Average
	1984	1986	1989	1990	1984-1990
Total	57	58	59	62	59
		Self-reported health status			
65 years and over (1)	70	75	73	77	74
Excellent/very good	73	75	67	76	73
Good	64	73	73	81	73
Fair/Poor	72	77	79	76	76
18-64 years (1)	55	56	57	59	57
Excellent/very good	53	54	53	56	54
Good	55	57	61	62	59
Fair/poor	66	62	68	70	66
		Race			
65 years and over (2)	70	75	73	77	74
White	69	75	73	78	74
Black	78	77	78	74	77
18-64 years (2)	55	56	57	59	57
White	55	55	56	58	56
Black	61	61	68	70	65

Notes:

(1) The total for the age group includes persons with unknown health status.

(2) The total for the age group includes persons with race listed as "other".

(3) Relative standard errors were not available for 1984.

Source: National Health Interview Survey, National Center for Health Statistics.

Table 6. Risk (odds ratios) of having a physician visit for selected variables by age: 1984, 1986 and 1989.

Independent Variables	1984 18-64 yrs of age	1984 65 + yrs of age	1986 18-64 yrs of age	1986 65 + yrs of age	1989 18-64 yrs of age	1989 65 + yrs of age
Intercept	0.520 •	0.515 •	0.480 •	0.359 •	0.466 •	0.694 •
Income to poverty ratio	1.076 •	1.070 •	1.075 •	1.137 •	1.062 •	1.089 •
Sex (0=male, 1=female)	2.102 •	1.358 •	2.176 •	1.445 •	2.244 •	1.315 •
Race (a)						
Black	1.040	1.093	0.922 •	1.145	1.022	1.179
Other	0.724 •	1.366	0.692 •	0.644	0.699 •	0.761
Self-reported health status (b)						
Very good	1.379 •	1.515 •	1.312 •	1.546 •	1.307 •	1.613 •
Good	1.415 •	1.801 •	1.495 •	2.144 •	1.356 •	1.798 •
Fair	2.009 •	2.341 •	2.031 •	2.707 •	1.951 •	2.128 •
Poor	3.154 •	3.372 •	3.798 •	4.230 •	3.704 •	3.639 •
Activity limitation (c)						
Unable to perform major activity	1.747 •	1.516 •	1.629 •	1.300	1.853 •	1.748 •
Limited in kind/amount of major activity	1.263 •	1.029	1.272 •	1.456 •	1.282 •	1.173
Limited in other activity	1.005	1.061	1.106	1.107	1.188 •	1.300 •
Presence of chronic condition (no=0; yes=1)	2.354 •	2.744 •	2.305 •	2.769 •	2.332 •	2.577 •
Geographic area of residence (d)						
MSA - central city	1.001	1.206 •	1.060	1.232 •	1.127 •	1.120
MSA - not central city	1.010	1.506 •	1.089 •	1.358 •	1.066 •	1.270 •
Highest educational level (e)						
0-11 years	0.807 •	0.947	0.858 •	0.859	0.873 •	0.872 •
1-3 years college	1.142 •	1.349 •	1.217 •	1.149	1.209 •	1.114
College graduate or more	1.264 •	1.274 •	1.279 •	1.031	1.284 •	1.276 •
Age division (f)	0.810 •	1.234 •	0.862 •	1.407 •	0.870 •	1.286 •
Insurance (g)						
Medicare and other public coverage	NA	1.894 •	NA	1.667 •	NA	1.737 •
Medicare and other coverage	NA	1.671 •	NA	2.125 •	NA	1.791 •
Other than Medicare	NA	0.979	NA	1.309	NA	1.155
Public coverage	2.375 •	NA	2.243 •	NA	2.364 •	NA
Private coverage	1.742 •	NA	1.755 •	NA	2.049 •	NA

(a) Reference group: White

(b) Reference group: Excellent health status

(c) Reference group: Not limited

(d) Reference group: Non-MSA area

(e) Reference group: High school diploma

(f) Age division for 18-64 year olds: 18-44=0, 45-64=1. Age division 65 and over group: 65-70=0, 75 and over=1

(g) Reference group: Medicare only for over 65 mode. Uninsured for 18-64 year old model

• Coefficient corresponding to odds ratio significant at p<= .05.

Table 7. Coefficients for use of physician visits among users for selected variables by age: 1984, 1986 and 1989.

Independent Variables	1984 18-64 yrs of age	 65 + yrs of age	1986 18-64 yrs of age	 65 + yrs of age	1989 18-64 yrs of age	 65 + yrs of age
Intercept	0.339 •	0.386 •	0.334 •	0.436 •	0.298 •	0.545 •
Income to poverty ratio	0.009 •	0.023 •	0.006	0.017 •	0.006 •	0.008
Sex (0 = male, 1 = female)	0.231 •	0.063 •	0.244 •	0.063 •	0.241 •	0.047 •
Race (a)						
Black	-0.113 •	0.063	-0.123 •	-0.010	-0.123 •	-0.003
Other	-0.085 •	-0.038	-0.105 •	-0.008	-0.038	-0.036
Self-reported health status (b)						
Very good	0.144 •	0.130 •	0.142 •	0.186 •	0.158 •	0.131 •
Good	0.295 •	0.252 •	0.280 •	0.339 •	0.303 •	0.279 •
Fair	0.542 •	0.477 •	0.560 •	0.520 •	0.552 •	0.505 •
Poor	0.887 •	0.823 •	0.860 •	0.884 •	0.876 •	0.863 •
Activity limitation (c)						
Unable to perform major activity	0.459 •	0.279 •	0.462 •	0.338 •	0.489 •	0.255 •
Limited in kind/amount of major activity	0.270 •	0.148 •	0.244 •	0.210 •	0.301 •	0.230 •
Limited in other activity	0.112 •	0.122 •	0.162 •	0.149 •	0.164 •	0.169 •
Presence of chronic condition (no = 0; yes = 1)	0.365 •	0.389 •	0.369 •	0.398 •	0.359 •	0.340 •
Geographic area of residence (d)						
MSA - central city	0.068 •	0.131 •	0.067 •	0.063 •	0.051 •	0.043 •
MSA - not central city	0.041 •	0.075 •	0.065 •	0.076 •	0.034 •	0.057 •
Highest educational level (e)						
0-11 years	-0.038 •	0.005	-0.066 •	-0.041	-0.007	-0.020
1-3 years college	0.050 •	0.035	0.028 •	-0.022	0.053 •	-0.036
College graduate or more	0.062 •	0.092 •	0.089 •	0.040	0.072 •	0.066 •
Age division (f)	-0.107 •	0.055 •	-0.087 •	0.052 •	-0.106 •	0.050 •
Insurance (g)						
Medicare and other public coverage	NA	0.230 •	NA	0.148 •	NA	0.218 •
Medicare and other coverage	NA	0.055 •	NA	0.042	NA	0.056 •
Other than Medicare	NA	-0.033	NA	0.071	NA	0.056
Public coverage	0.259 •	NA	0.304 •	NA	0.334 •	NA
Private coverage	0.082 •	NA	0.098 •	NA	0.144 •	NA
R-square	0.19	0.19	0.19	0.20	0.20	0.20

(a) Reference group: White

(b) Reference group: Excellent health status

(c) Reference group: Not limited

(d) Reference group: Non-MSA area

(e) Reference group: High school diploma

(f) Age division for 18-64 year olds: 18-44 = 0, 45-64 = 1
Age division 65 and over group: 65-74 = 0, 75 and over = 1

(g) Reference group: Medicare only for over 65 model
Uninsured for 18-64 year old model

• Coefficient significant at p< = .05.

Table 8. Statistical tests of the trends in use of physician services for selected variables.

	Pair wise comparisons between years					
	Chi-square (probability of visit)			T-test (No. of visits in a year)		
Variables	1984 to 1986	1986 to 1989	1984 to 1989	1984 to 1986	1986 to 1989	1984 to 1989
65 years of age and over						
Income to poverty ratio	5.71 *	4.79 *	0.83	-0.74	-1.55	-2.61 **
Race: black	0.16	0.10	0.70	-1.82	0.23	-2.42 *
Fair health status	1.44	6.56 *	1.05	1.04	-0.51	0.98
Poor health status	1.34	0.86	0.23	1.15	-0.55	1.10
MSA central city	0.06	1.96	1.19	-2.28 *	-0.93	-4.20 **
MSA non central city	1.45	1.10	7.09 **	0.04	-1.01	-0.96
Age 75 and over	3.10	2.58	0.55	-0.11	-0.11	-0.27
Medicare and other public coverage	0.63	0.11	0.47	-1.59	1.96 *	-0.34
Medicare and other coverage	7.48 **	6.60 *	1.06	-0.40	0.26	0.02
18-64 years of age						
Income to poverty ratio	0.00	3.86 *	4.24 *	-0.72	-0.19	-1.19
Race: black	10.36 **	12.71 **	0.38	-0.60	0.02	-0.80
Fair health status	0.03	0.68	0.36	0.76	-0.49	0.54
Poor health status	1.85	0.05	2.04	-0.72	0.57	-0.39
MSA central city	2.82	5.46 *	20.67 **	-0.03	-1.52	-1.56
MSA non central city	5.70 *	0.77	5.22 *	1.73	-2.99 **	-0.64

* significant at p < = .05 (two tail test)

** significant at p < = .01 (two tail test)

Chapter 8

Discussion, Recommendations, and Future Work

The statute requires the Secretary of the Department of Health and Human Services to include as part of this annual Medicare physician payment report recommendations:

(i) addressing any identified patterns of inappropriate utilization,

(ii) on utilization review,

(iii) on physician education or patient education,

(iv) addressing any problem of beneficiary access to care made evident by the monitoring process, and

(v) on such matters as the Secretary deems appropriate.

This chapter discusses the Department's actions regarding each of these issues. No recommendations are being made at this time. The final section of this chapter addresses plans for future analyses of utilization and access to care.

The following describes the efforts under way in the Department of Health and Human Services in response to the mandate for recommendations:

I. Addressing any identified patterns of inappropriate utilization

The Agency for Health Care Policy and Research (AHCPR) in the Department of Health and Human Services was established by OBRA 1989 to enhance the quality, appropriateness, and effectiveness of health care services. To carry out this legislative mandate, AHCPR is the primary sponsor of the Medical Treatment Effectiveness Program (MEDTEP), a program that has four components: (1) research projects relating to understanding patient outcomes; (2) the development of clinical practice guidelines; (3) development of data bases to support effectiveness research; and (4) dissemination of research findings and practice guidelines.

MEDTEP's most ambitious research projects are the "Patient Outcomes Research Teams" (PORTs). These projects are major 5-year studies. The work of the PORTs includes syntheses of the literature, analyses of primary and secondary data, and the development of clinical recommendations. Another important feature is the dissemination of findings, and the evaluation of the dissemination on changes in clinical practice. As of January 1993, 14 PORT projects have been awarded. These projects address the following clinical conditions: low back pain; total knee replacement; acute myocardial infarction; cataract; prostate disease; ischemic heart disease; biliary tract disease; hip fracture and replacement; childbirth; diabetes; pneumonia; stroke; low birth weight; and schizophrenia.

The second major activity of the MEDTEP is the development of clinical practice guidelines. The guidelines are prepared by panels of private sector experts and consumers or by contract with non-profit entities. They focus on clinical conditions and procedures that affect many people, are expensive, involve wide variations in current medical practice and patient outcomes, and are important for Medicare and other public programs. As of March 1993, guidelines have been released for urinary incontinence; acute post-operative pain; prevention and early intervention of pressure ulcers; and management of cataract. Practice guidelines for another 15 topics are in various stages of development and peer review.

Health care providers, educators, and consumers may use these guidelines to help reduce uncertainty in the prevention, diagnosis, treatment, and management of health conditions. Findings from the PORTs and other similar research, as well as comprehensive literature reviews and research syntheses, are used to develop and update these guidelines.

In addition to the clinical guidelines, AHCPR has initiated the process of translating the guidelines into medical review criteria, standards of quality, and performance measures. The AHCPR has awarded a contract to the American Medical Review Research Center (AMRRC) that includes translating three guidelines (urinary incontinence, postoperative pain, and benign prostate disease) into medical review criteria that can be applied by PROs. Additional contracts will include the translation of other guidelines for use by a variety of health care and medical review organizations.

To support this work, as well as future efforts to improve the validity and reliability of medical review methods and procedures, AHCPR has also established the "Workgroup to

Develop Methods for Deriving Review Criteria, Standards of Quality and Performance Measures." A Federal Liaison Group for this workgroup includes representatives of the Health Care Financing Administration (HCFA), the Department of Veterans Affairs, and the Department of Defense as well as AHCPR. Active involvement with the workgroup, along with HCFA and PRO involvement in the development of medical review criteria based on clinical guidelines, will help refine and focus efforts to identify inappropriate patterns of health care utilization.

HCFA has the primary responsibility for monitoring various changes occurring during the new Medicare physician payment system. HCFA will utilize MEDTEP findings to help identify patterns of inappropriate use and address them through the Peer Review Organization (PRO) system.

II. On utilization review

The PRO system operated by HCFA conducts oversight of physician practice patterns. From its beginning, the PRO system has incorporated available knowledge, methods, and approaches into the review process. In a major effort to advance the efficiency and effectiveness of PRO review, information from selected medical records is being abstracted by the PROs into Uniform Clinical Data Set (UCDS) data. In February 1991, several PROs began to collect pilot UCDS data on a random sample of discharges. Six PROs are now using UCDS as their screening tool for all routinely-selected medical records to identify cases which should undergo utilization review by a physician adviser. In these PROs, UCDS and the associated Patient Care Algorithm System (PCAS) are used in place of traditional nurse review.

By the end of 1994, PROs will award subcontracts to Clinical Data Abstraction Centers that meet HCFA qualifications. The Centers will abstract UCDS data for a sample of discharges; by mid-1994 these centers will be abstracting data for all PROs. Although a UCDS data series for six States will stretch forward from early 1991, and for a majority of States from mid-1993, the 1991 and 1992 data are of uneven quality because of startup adjustments and changes in the data collection system.

In addition to identifying cases to undergo utilization review, the UCDS data will provide baseline information for tracking appropriateness of care. At this time, these data have limitations for tracking appropriateness of care because PRO review is not yet a sufficiently standardized process. The first step toward making review more uniform is standardizing screening by using the PCAS in place of nurse review. However, the PCAS is still under development. Compared to traditional nurse screening, PCAS detects about the same number of cases that are ultimately confirmed as quality problems by physician review. Both screening approaches have had a high false positive rate and there is some evidence that they also have had a significant number of false negatives. HCFA is working with the American Medical Association Practice Parameters Partnership and Forum to refine the PCAS algorithms. An immediate goal will be not only to reduce the false positive and false negative rates, but also to make PCAS consistent with currently accepted practice guidelines.

It should be observed that HCFA is committed to using evidence from quality and utilization review to modify care. The areas in which HCFA will have the best data on rates of inappropriate care will be those in which it is making major efforts to change medical practices. Thus, it will not be realistic to interpret changes in these areas in terms of the impact of physician payment reform. For example, about 40 percent of UCDS data collection will be focused on cardiovascular disease as part of the Cooperative Cardiovascular Project. The purpose of this project is to improve appropriateness of care for acute myocardial infarction, coronary artery bypass grafting, and percutaneous transluminal coronary angioplasty. HCFA expects selected data from four pilot PROs to be available for focused analytic studies by the beginning of 1994.

III. On physician education or patient education

Since its inception in 1984, PRO review has been centered on the case-by-case review of individual medical records, selected primarily on a sample basis, using essentially intuitive local clinical criteria. There are serious shortcomings to this approach. It is costly, compartmentalized, and confrontational. Most importantly, it holds little hope for fostering meaningful change in provider and practitioner behavior. These shortcomings are discussed in the 1990 Institute of Medicine (IOM) report, "Medicare: A New Strategy for Quality Assurance."

HCFA has developed a new strategy consistent with the IOM recommendations to continuously improve quality of care, and to strengthen the ability of health care organizations and practitioners to assess and improve their own performance. This strategy is the Health Care Quality Improvement Initiative (HCQII), which will move the PRO program from its emphasis on individual (and often isolated) clinical errors to helping providers improve the mainstream of medical care.

The HCQII has its conceptual foundations in the health care variations research of the last decade--which examines variability in care and outcomes among providers and geographical areas--and in the continuous quality improvement models now being adapted to health care from the experience of other industries. Under the HCQII, PROs will utilize statistical quality control to examine variations in both the processes and outcomes of care. PROs will then share these data with hospitals and physicians, and work with them to interpret and apply the findings.

IV. Addressing any problem of beneficiary access to care made evident by the monitoring process, and V. On such matters as the Secretary deems appropriate.

Current efforts to monitor changes in the use of and access to physician services by Medicare beneficiaries under payment reform are presented in this report. The major emphasis has been on the development of a monitoring system to provide timely information on use of Part B services and on the development of detailed information on access to and utilization of Medicare covered services by vulnerable subgroups of the Medicare population. The analyses using the MCBS and the NHIS, although confined to baseline data on this report, will improve our perspective on the changes found in utilization and access as physician payment reform continues.

The analyses presented in this third report to Congress were performed both in HCFA and by extramural researchers. Other studies funded through cooperative agreements sponsored by HCFA will extend the analyses of use and access for future reports. A 3-year cooperative agreement awarded in 1992 to the Center for Health Economics Research will examine the impact of the Medicare fee schedule on access to physician services. The first part of the study will focus on changes in access in geographic areas most affected by payment reform fee changes compared to changes in other areas. This part of the study will be based on a special 100 percent data base in 11 States which began in 1988, as well as national data from 1991-93. The second part of the study will develop more national Medicare trend data on physician use. A unique aspect of these two parts of the study will be the aggregation of claims data into episodes of treatment for selected procedures and conditions. The final part of the study will continue the analysis of the MCBS with post-reform data.

Another 3-year cooperative agreement awarded to the Urban Institute will also look at issues in access to Medicare physician services. It will analyze trends in the volume, intensity, and price of physician services from 1985 though 1992, the first year of payment reform. It will examine the effect of changes in Medicare fees for overvalued services in 1990 on the volume of services. The Urban Institute will use the MCBS to examine the effect of beneficiary and market characteristics on the use of Medicare physician services. These may give us an idea about changes in use that may occur under payment reform.

Another study of technology is approaching completion at Project HOPE. This study analyzes diffusion and Medicare expenditure patterns for the following technologies:

- Automatic Implantable Cardioverter Defibrillators

- Knee Arthroscopy
- Total Knee Replacement
- Total Hip Replacement
- Transurethral Prostatectomy
- Upper Gastrointestinal Endoscopy

Data for the 1994 Analyses

Despite the improvements in the availability of Medicare claims data resulting from the NCH and the institution of the monitoring systems, the current 1993 analyses presented here have only limited post-payment reform data. It is expected that the 1994 annual report will have more complete post-reform data available for improved analyses.

Appendix A

Urban Institute HCPC Classification Codes
Revised January 7, 1993

(1) Evaluation and Management

M1A, Office Visits - New

90000, 90010, 90015, 90017, 90020, 90757, 99201, 99202, 99203, 99204, 99205, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 99432

M1B, Office Visits - Established

M0005, M0006, M0007, M0008, 90030, 90040, 90050, 90060, 90070, 90080, 90750, 90751, 90752, 90753, 90754, 90755, 90760, 90761, 90762, 90763, 90764, 90774, 95115, 95117, 99058, 99211, 99212, 99213, 99214, 99215, 99391, 99392, 99393, 99394, 99395, 99396, 99397, 99401, 99402, 99403, 99404, 99411, 99412, 99420, 99429, 99438

M2A, Hospital Visit - Initial

90200, 90215, 90220, 90225, 99218, 99219, 99220, 99221, 99222, 99223, 99431

M2B, Hospital Visit - Subsequent

M0021, M0022, M0023, M0029, M0590, 90240, 90250, 90260, 90270, 90280, 90282, 90285, 90292, 98900, 98902, 98910, 98912, 99150, 99151, 99154, 99155, 99156, 99231, 99232, 99233, 99238, 99361, 99362, 99433

M2C, Hospital Visit - Critical Care

94656, 94657, 94660, 94662, 99152, 99160, 99162, 99165, 99171, 99172, 99173, 99174, 99291, 99292, 99295, 99296, 99440

M3 , Emergency Room Visit

M0059, 90500, 90505, 90510, 90515, 90517, 90520, 90530, 90540, 90550, 90560, 90570, 90580, 90590, 99062, 99064, 99065, 99175, 99281, 99282, 99283, 99284, 99285, 99288

M4A, Home Visit

90100, 90110, 90115, 90117, 90130, 90140, 90150, 90160, 90170, 99341, 99342, 99343, 99351, 99352, 99353

M4B, Nursing Home Visit

M0039, M0049, 90300, 90315, 90320, 90340, 90350, 90360, 90370, 90400, 90410, 90415, 90420, 90430, 90440, 90450, 90460, 90470, 99301, 99302, 99303, 99311, 99312, 99313, 99321, 99322, 99323, 99331, 99332, 99333

M5A, Specialist - Pathology

88104, 88105, 88106, 88107, 88108, 88109, 88110, 88111, 88112, 88113, 88114, 88115, 88116, 88117, 88118, 88119, 88120, 88121, 88122, 88123, 88124, 88125, 88126, 88127, 88128, 88129, 88130, 88131, 88132, 88133, 88134, 88135, 88136, 88137, 88138, 88139, 88140, 88141, 88142, 88143, 88144, 88145, 88146, 88147, 88148, 88149, 88150, 88152, 88153, 88154, 88155, 88156, 88157, 88158, 88159, 88160, 88161, 88162, 88172, 88173, 88300, 88301, 88302, 88303, 88304, 88305, 88306, 88307, 88308, 88309, 88321, 88322, 88323, 88324, 88325, 88326, 88327, 88328, 88329, 88330, 88331, 88332, 88348

M5B, Specialist - Psychiatry

M0064, M0601, 90801, 90820, 90825, 90830, 90831, 90835, 90841, 90843, 90844, 90845, 90846, 90847, 90849, 90853, 90855, 90857, 90862, 90880, 90882, 90887, 90889, 90899

M5C, Specialist - Opthamology

92002, 92004, 92012, 92014, 92015, 92018, 92019, 92020, 92060, 92065, 92070, 92081, 92082, 92083, 92100, 92120, 92130, 92140, 92225, 92226, 92230, 92235, 92250, 92260, 92283, 92284, 92285, 92286, 92287, 92310, 92311, 92312, 92313, 92314, 92315, 92316, 92317, 92325, 92326, 92330, 92335, 92340, 92341, 92342, 92352, 92353, 92354, 92355

M5D, Specialist - Other

57410, 59800, 59810, 86077, 86078, 86079, 90900, 90902, 90904, 90906, 90908, 90910, 90915, 92502, 92504, 92506, 92507, 92508, 92531, 92532, 92533, 92534, 93660, 93797, 93798, 95105, 95120, 95125, 95130, 95131, 95132, 95133, 95134, 95135, 95140, 95145, 95146, 95147, 95148, 95149, 95150, 95155, 95160, 95170, 95180, 95831, 95832, 95833, 95834, 95851, 95852, 95857, 95880, 95881, 95882, 95883, 97700, 97701, 97720, 97721, 97752, 99025, 99178

M6 , Consultations

90600, 90601, 90602, 90603, 90604, 90605, 90606, 90607, 90608, 90609, 90610, 90611, 90612, 90613, 90614, 90615, 90616, 90617, 90618, 90619, 90620, 90621, 90622, 90623, 90624, 90625, 90626, 90627, 90628, 90629, 90630, 90631, 90632, 90633, 90634, 90635, 90636, 90637, 90638, 90639, 90640, 90641, 90642, 90643, 90644, 90645, 90646, 90647, 90648, 90649, 90650, 90651, 90652, 90653, 90654, 99241, 99242, 99243, 99244, 99245, 99251, 99252, 99253, 99254, 99255, 99261, 99262, 99263, 99271, 99272, 99273, 99274, 99275

(2) Procedures

P0 , Anesthesia

00100, 00102, 00104, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00162, 00164, 00170, 00172, 00174, 00176, 00190, 00192, 00210, 00212, 00214, 00216, 00218, 00220, 00222, 00300, 00320, 00322, 00350, 00352, 00400, 00402, 00404, 00406, 00410, 00420, 00450, 00452, 00454, 00470, 00472, 00474, 00500, 00520, 00522, 00524, 00528, 00530, 00532, 00534, 00540, 00542, 00544, 00546, 00548, 00560, 00562, 00580, 00600, 00604, 00620, 00622, 00630, 00632, 00634, 00670, 00700, 00702, 00730, 00740, 00750, 00752, 00754, 00756, 00770, 00790, 00792, 00794, 00796, 00800, 00802, 00806, 00810, 00820, 00830, 00832, 00840, 00842, 00844, 00846, 00848, 00850, 00855, 00857, 00860, 00862, 00864, 00866, 00868, 00870, 00872, 00873, 00880, 00882, 00884, 00900, 00902, 00904, 00906, 00908, 00910, 00912, 00914, 00916, 00918, 00920, 00922, 00924, 00926, 00928, 00930, 00932, 00934, 00936, 00938, 00940, 00942, 00944, 00946, 00948, 00950, 00952, 00955, 01000, 01110, 01120, 01130, 01140, 01150, 01160, 01170, 01180, 01190, 01200, 01202, 01210, 01212, 01214, 01220, 01230, 01232, 01234, 01240, 01250, 01260, 01270, 01272, 01274, 01300, 01320, 01340, 01360, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01420, 01430, 01432, 01440, 01442, 01444, 01460, 01462, 01464, 01470, 01472, 01474, 01480, 01482, 01484, 01486, 01490, 01500, 01502, 01520, 01522, 01600, 01610, 01620, 01622, 01630, 01632, 01634, 01636, 01638, 01650, 01652, 01654, 01656, 01670, 01680, 01682, 01700, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01756, 01758, 01760, 01770, 01772, 01780, 01782, 01784, 01800, 01810, 01820, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01860, 01900, 01902, 01904, 01906, 01908, 01910, 01912, 01914, 01916, 01918, 01920, 01921, 01922, 01990, 01995, 01996, 01999, 99100, 99116, 99135, 99140

P1A, Major Procedure - Breast

19110, 19112, 19161, 19162, 19180, 19200, 19220, 19240, 19316, 19318, 19324, 19325, 19328, 19330, 19340, 19342, 19350, 19357, 19360, 19361, 19362, 19364, 19366, 19370, 19371, 19380, 19499

P1B, Major Procedure - Colectomy

44140, 44141, 44143, 44144, 44145, 44146, 44147, 44150, 44151, 44152, 44153, 44155, 44156, 44160

P1C, Major Procedure - Cholecystectomy

47600, 47605, 47610, 47611, 47612, 47620, 47630

P1D, Major Procedure - TURP

52601, 52606, 52612, 52614, 52620, 52630, 52640

P1E, Major Procedure - Hysterectomy

51925, 58150, 58152, 58180, 58200, 58205, 58210, 58260, 58262, 58263, 58265, 58267, 58270, 58275, 58280, 58285, 59525

P1F, Major Procedure - Explor/Decompr/Excis Disc

62295, 62296, 62297, 62299, 62301, 62302, 62303, 63001, 63003, 63005, 63010, 63011, 63015, 63016, 63017, 63020, 63021, 63030, 63031, 63035, 63040, 63041, 63042, 63045, 63046, 63047, 63048, 63055, 63056, 63057, 63060, 63064, 63065, 63066, 63075, 63076, 63077, 63078, 63081, 63082, 63085, 63086, 63087, 63088, 63090, 63091, 63170, 63172, 63173, 63180, 63182, 63185, 63190, 63191, 63192, 63194, 63195, 63196, 63197, 63198, 63199, 63200, 63251

P1G, Major Procedure - Other

M0070, M0100, M0260, M0261, M0301, M0900, 11960, 11970, 11971, 15120, 15121, 15400, 15831, 15832, 15833, 15834, 15835, 15836, 15837, 15838, 15839, 15933, 15934, 15935, 15936, 15937, 15940, 15953, 15967, 15999, 19245, 19250, 19260, 19271, 19272, 19290, 19291, 19300, 19301, 19310, 30150, 30160, 30540, 30545, 30999, 31002, 31040, 31050, 31051, 31075, 31080, 31081, 31084, 31085, 31086, 31087, 31090, 31225, 31230, 31299, 31300, 31320, 31360, 31365, 31367, 31368, 31370, 31375, 31380, 31382, 31390, 31395, 31400, 31420, 31500, 31580, 31582, 31584, 31585, 31586, 31587, 31588, 31590, 31595, 31599, 31600, 31601, 31603, 31605, 31610, 31611, 31725, 31730, 31750, 31755, 31760, 31766, 31770, 31775, 31780, 31781, 31785, 31786, 31800, 31805, 31820, 31825, 31830, 31899, 32000, 32002, 32005, 32020, 32035, 32036, 32095, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32151, 32160, 32200, 32215, 32220, 32225, 32310, 32315, 32320, 32400, 32402, 32405, 32420, 32440, 32445, 32450, 32480, 32485, 32490, 32500, 32520, 32522, 32525, 32540, 32545, 32800, 32810, 32815, 32820, 32900, 32905, 32906, 32940, 32960, 32999, 33916, 36450, 36455, 36500, 36510, 36520, 36522, 36660, 37200, 37201, 37202, 37203, 37204, 37788, 38100, 38101, 38115, 38230, 38240, 38241, 38380, 38381, 38382, 38525, 38562, 38564, 38720, 38721, 38724, 38761, 38765, 38766, 38770, 38771, 38780, 38794, 38999, 39000, 39010, 39020, 39060, 39070, 39200, 39220, 39499, 39500, 39501, 39502, 39503, 39520, 39530, 39531, 39540, 39541, 39545, 39547, 39599, 40700, 40701, 40702, 40720, 40740, 40761, 40799, 40899, 41130, 41135, 41140, 41145, 41150, 41153, 41155, 41252, 41599, 41870, 41872, 41874, 41899, 42145, 42150, 42200, 42205, 42210, 42215, 42220, 42225, 42226, 42227, 42235, 42260, 42299, 42326, 42409, 42415, 42420, 42425, 42426, 42510, 42820, 42821, 42825, 42826, 42830, 42831, 42835, 42836, 42842, 42844, 42845, 42890, 42892, 42894, 42953, 42961, 42962, 42970, 42971, 42972, 42999, 43000, 43020, 43030, 43040, 43045, 43100, 43101, 43105, 43106, 43110, 43111, 43115, 43119, 43120, 43130, 43135, 43136, 43300, 43305, 43310, 43312, 43320, 43321, 43324, 43325, 43330, 43331, 43340, 43341, 43350, 43351, 43352, 43400, 43401, 43410, 43415, 43420, 43425, 43460, 43499, 43500, 43501, 43510, 43520, 43605, 43610, 43620, 43625, 43630, 43635, 43638, 43640, 43641, 43800, 43810, 43820, 43825, 43840, 43842, 43843, 43844, 43845, 43846, 43850, 43855, 43860, 43865, 43870, 43880, 43885, 43999, 44000, 44005, 44010, 44015, 44020, 44021, 44025, 44040, 44050, 44055, 44060, 44110, 44111, 44115, 44120, 44125, 44130, 44131, 44300, 44305, 44308, 44310, 44312, 44314, 44316, 44320, 44322, 44345, 44346, 44400, 44405, 44600, 44605, 44610, 44620, 44625, 44640, 44650, 44660, 44661, 44680, 44799, 44800, 44820, 44850, 44899, 44900, 44950, 44955, 44960, 45108, 45110, 45111, 45112, 45114, 45116, 45120, 45121, 45130, 45135, 45150, 45160, 45540, 45541, 45550, 45800, 45805, 45820, 45825, 45999, 46700, 46705, 46715, 46716, 46730, 46735, 46740, 46751, 46761, 46762, 46999, 47001, 47010, 47100, 47120, 47122, 47125, 47130, 47133, 47135, 47300, 47350, 47355, 47360, 47399, 47400, 47420, 47425, 47440, 47460, 47480, 47490, 47505, 47510, 47511, 47700, 47701, 47710, 47715, 47716, 47720, 47721, 47740, 47760, 47765, 47780, 47800, 47801, 47802, 47810, 47850, 47855, 47999, 48000, 48020, 48100, 48102, 48120, 48140, 48145, 48148, 48150, 48151, 48155, 48160, 48180, 48500, 48510, 48520, 48540, 48999, 49000, 49002, 49010, 49020, 49040, 49060, 49080, 49081, 49085, 49200, 49201, 49215, 49220, 49250, 49255, 49421, 49425, 49427, 49500, 49530, 49535, 49565, 49580, 49600, 49605, 49606, 49610, 49611, 49630, 49635, 49640, 49900, 49905, 49999, 50010, 50045, 50060, 50065, 50070, 50075, 50080, 50081, 50100, 50120, 50125, 50130, 50135, 50205, 50220, 50225, 50230, 50234, 50236, 50240, 50280, 50290, 50300, 50320, 50340, 50341, 50360, 50365, 50366, 50370, 50380, 50395, 50400, 50405, 50500, 50520, 50525, 50526, 50540, 50600, 50605, 50610, 50620, 50630, 50650, 50660, 50700, 50715, 50716, 50722, 50725, 50727, 50728, 50740, 50750, 50760, 50770, 50780, 50781, 50782, 50783, 50785, 50786, 50800, 50801, 50810, 50815, 50816, 50820, 50821, 50825, 50830, 50840, 50841, 50860, 50861, 50900, 50920, 50930, 50940, 51020, 51030, 51040, 51045, 51050, 51060, 51065, 51080, 51500, 51520, 51525, 51530, 51535, 51536, 51550, 51555, 51565, 51570, 51575, 51580, 51585, 51590, 51595, 51596, 51597, 51800, 51820, 51840, 51841, 51845, 51865, 51900, 51920, 51940, 51960, 51980, 53025, 53210, 53215, 53415, 53443, 53445, 53505, 53899, 54000, 54111, 54112, 54125, 54130, 54135, 54300, 54304, 54308, 54312, 54316, 54318, 54322, 54324, 54326, 54328, 54332, 54336, 54340, 54344, 54348, 54352, 54360, 54380, 54385, 54390, 54400, 54401, 54402, 54405, 54407, 54409, 54420, 54430, 54435, 54535, 54550, 54555, 54560, 54565, 54600, 54620, 54640, 54641, 54645, 54660, 54661, 55110, 55200, 55250, 55450, 55725, 55740, 55801, 55810, 55812, 55815, 55821, 55831, 55840, 55842, 55845, 55860, 55862, 55865, 55899, 55970, 55980, 56200, 56620, 56625, 56630, 56631, 56633, 56634, 56635, 56636, 56637, 56640, 56641, 56680, 56685, 56700, 56710, 56800, 56810, 56805, 57000, 57010, 57065, 57108, 57110, 57120, 57135, 57200, 57210, 57220, 57230, 57240, 57250, 57260, 57265, 57268, 57270, 57280, 57282, 57288, 57289, 57291, 57292, 57300, 57305, 57307, 57310, 57311, 57320, 57330, 57335, 57415, 57530, 57540, 57545, 57550, 57555, 57556, 57700, 58140, 58145, 58240, 58400, 58410, 58520, 58540, 58600, 58605, 58611, 58615, 58700, 58720, 58740, 58750, 58752, 58760, 58770, 58800, 58805, 58820, 58822, 58825.

P1G, Major Procedure - Other (cont)

58920, 58925, 58940, 58942, 58943, 58945, 58950, 58951, 58952, 58960, 58999, 59100, 59101, 59105, 59106, 59120, 59121, 59125, 59126, 59130, 59135, 59136, 59140, 59160, 59350, 59351, 59400, 59410, 59412, 59420, 59430, 59500, 59501, 59510, 59515, 59520, 59521, 59540, 59541, 59560, 59561, 59580, 59581, 59830, 59850, 59851, 59852, 59899, 60220, 60225, 60240, 60242, 60245, 60246, 60252, 60254, 60260, 60261, 60270, 60281, 60500, 60502, 60505, 60510, 60520, 60540, 60545, 60550, 60555, 60600, 60605, 60699, 61000, 61001, 61007, 61045, 61052, 61053, 61055, 61105, 61106, 61107, 61108, 61120, 61130, 61140, 61150, 61151, 61154, 61155, 61156, 61210, 61215, 61250, 61251, 61253, 61304, 61305, 61310, 61311, 61312, 61313, 61314, 61315, 61320, 61321, 61330, 61331, 61332, 61333, 61334, 61340, 61341, 61343, 61345, 61440, 61450, 61458, 61460, 61470, 61480, 61490, 61491, 61500, 61501, 61510, 61512, 61514, 61516, 61518, 61519, 61520, 61521, 61522, 61524, 61526, 61530, 61531, 61532, 61533, 61534, 61535, 61536, 61538, 61539, 61541, 61542, 61543, 61544, 61545, 61546, 61548, 61550, 61552, 61553, 61555, 61556, 61557, 61558, 61559, 61561, 61562, 61563, 61564, 61570, 61571, 61575, 61576, 61624, 61626, 61680, 61682, 61684, 61686, 61690, 61692, 61700, 61702, 61703, 61705, 61708, 61710, 61711, 61712, 61720, 61735, 61750, 61751, 61760, 61770, 61780, 61790, 61791, 61793, 61795, 61850, 61855, 61860, 61865, 61870, 61875, 61880, 61885, 61888, 62000, 62005, 62010, 62100, 62115, 62116, 62117, 62120, 62121, 62140, 62141, 62142, 62143, 62145, 62146, 62147, 62180, 62190, 62192, 62194, 62200, 62201, 62220, 62223, 62225, 62230, 62256, 62258, 62268, 62269, 62272, 62280, 62282, 62292, 62293, 62294, 63012, 63210, 63215, 63220, 63225, 63240, 63241, 63242, 63250, 63252, 63265, 63266, 63267, 63268, 63270, 63271, 63272, 63273, 63275, 63276, 63277, 63278, 63280, 63281, 63282, 63283, 63285, 63286, 63287, 63290, 63300, 63301, 63302, 63303, 63304, 63305, 63306, 63307, 63308, 63600, 63610, 63615, 63650, 63652, 63655, 63656, 63657, 63658, 63660, 63685, 63688, 63700, 63702, 63704, 63706, 63707, 63708, 63709, 63710, 63740, 63741, 63744, 63746, 63750, 63780, 64746, 64752, 64755, 64760, 64761, 64762, 64763, 64764, 64766, 64768, 64771, 64792, 64804, 64806, 64809, 64811, 64818, 64819, 64858, 64859, 64861, 64862, 64864, 64865, 64866, 64868, 64870, 64999, 69155, 69300, 69301, 69310, 69320, 69399, 69502, 69505, 69511, 69530, 69535, 69540, 69550, 69552, 69554, 69601, 69602, 69603, 69604, 69605, 69610, 69662, 69710, 69711, 69799, 69801, 69802, 69805, 69806, 69820, 69840, 69905, 69910, 69915, 69930, 69950, 69955, 69960, 69965, 69970, 69979, 71036, 71037, 71090, 74327, 74350, 74351, 74355, 74356, 74360, 74361, 74363, 74475, 74476, 74480, 74481, 74485, 74486, 75894, 75895, 75896, 75897, 75970, 75971, 75980, 75981, 75982, 75983, 75984, 75985, 75989, 75990, 76000, 76001, 76934, 76935, 76944, 76945, 90870, 90871, 90872, 95920, 95961, 95962

P2A, Major Procedure, Cardiovascular - CABG

33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33520, 33521, 33522, 33523, 33525, 33528, 33530, 33533, 33534, 33535, 33536

P2B, Major Procedure, Cardiovascular - Aneurysm Repair

35081, 35082, 35091, 35092, 35102, 35103

P2C, Major Procedure, Cardiovascular - Thromboendarterectomy

35301

P2D, Major Procedure, Cardiovascular - Coronary Angioplasty (PTCA)

92982, 92984, 92995, 92996

P2E, Major Procedure, Cardiovascular - Pacemaker Insertion

33200, 33201, 33205, 33206, 33207, 33208, 33210, 33212, 33216, 33218, 33219, 33222, 33232, 33245, 33246, 33248

P2F, Major Procedure, Cardiovascular - Other

33010, 33011, 33015, 33020, 33025, 33030, 33031, 33035, 33050, 33100, 33120, 33130, 33250, 33251, 33260, 33261, 33300, 33305, 33310, 33315, 33320, 33322, 33330, 33335, 33350, 33400, 33404, 33405, 33407, 33408, 33411, 33412, 33415, 33416, 33417, 33420, 33422, 33425, 33426, 33427, 33430, 33450, 33452, 33460, 33465, 33468, 33470, 33471, 33472, 33474, 33476, 33478, 33480, 33481, 33482, 33483, 33485, 33490, 33492, 33500, 33501, 33502, 33503, 33504, 33542, 33545, 33560, 33570, 33575, 33640, 33641, 33643, 33645, 33647, 33649, 33660, 33665, 33670, 33681, 33682, 33684, 33688, 33690, 33692, 33694, 33696, 33702, 33710, 33720, 33730, 33735, 33737, 33738, 33739, 33750, 33755, 33762, 33764, 33766, 33774, 33775, 33776, 33777, 33778, 33779, 33780, 33781, 33782, 33783, 33784, 33785, 33786, 33788, 33800, 33802, 33803, 33810, 33812, 33813, 33814, 33820, 33822, 33824, 33830, 33840, 33845, 33850, 33851, 33852, 33855, 33860, 33865, 33870, 33875, 33877, 33910, 33915, 33930, 33935, 33940, 33945, 33960, 33970, 33971, 33972, 33999, 34001, 34051, 34101, 34111, 34151, 34201, 34203, 34401, 34421, 34451, 34471, 34490, 34501, 34510, 34520, 34530, 35001, 35002, 35005, 35011, 35013, 35021, 35022, 35045, 35111, 35112, 35121, 35122, 35131, 35132, 35141, 35142, 35151, 35152, 35161, 35162, 35180, 35182, 35184, 35188, 35189, 35190, 35201, 35206, 35207, 35211, 35216, 35221, 35226, 35231, 35236, 35241, 35246, 35251, 35256, 35261, 35266, 35271, 35276, 35281, 35286, 35311, 35321, 35331, 35341, 35351, 35355, 35361, 35363, 35371, 35372, 35381, 35450, 35452, 35454, 35456, 35458, 35459, 35460, 35470, 35471, 35472, 35473, 35474, 35475, 35476, 35480, 35481, 35482, 35483, 35484, 35485, 35490, 35491, 35492, 35493, 35494, 35495, 35501, 35506, 35507, 35508, 35509, 35511, 35515, 35516, 35518, 35521, 35526, 35531, 35533, 35536, 35541, 35546, 35548, 35549, 35551, 35556, 35558, 35560, 35563, 35565, 35566, 35571, 35582, 35583, 35585, 35587, 35601, 35606, 35612, 35616, 35621, 35626, 35631, 35636, 35637, 35638, 35641, 35642, 35645, 35646, 35650, 35651, 35654, 35656, 35661, 35663, 35665, 35666, 35671, 35681, 35701, 35721, 35741, 35761, 35800, 35820, 35840, 35860, 35870, 35875, 35880, 35900, 35910, 36005, 36011, 36012, 36013, 36014, 36015, 36216, 36217, 36218, 36246, 36247, 36248, 36260, 36261, 36262, 36299, 36460, 36480, 36481, 36488, 36489, 36490, 36491, 36493, 36495, 36496, 36497, 36530, 36531, 36532, 36533, 36534, 36535, 36620, 36625, 36640, 36800, 36810, 36815, 36820, 36821, 36822, 36825, 36830, 36832, 36835, 36840, 36845, 36860, 36861, 37140, 37145, 37160, 37180, 37181, 37190, 37205, 37206, 37207, 37208, 37400, 37420, 37440, 37460, 37470, 37500, 37520, 37540, 37560, 37565, 37600, 37605, 37606, 37615, 37616, 37617, 37618, 37620, 37650, 37651, 37660, 37799, 75940, 75941, 75950, 75951, 75955, 75956, 75961, 75962, 75963, 75964, 75965, 75966, 75967, 75968, 75969, 75972, 75973, 75974, 75975, 75976, 75977, 75978, 75979, 76930, 76931, 76932, 76933, 92950, 92970, 92971, 92975, 92977, 92986, 92990, 93501, 93503, 93505, 93510, 93511, 93514, 93515, 93524, 93526, 93527, 93528, 93529, 93535, 93536, 93561, 93562, 93570, 93600, 93602, 93603, 93604, 93605, 93606, 93607, 93608, 93609, 93610, 93612, 93614, 93615, 93616, 93618, 93620, 93621, 93622, 93623, 93624, 93630, 93631, 93650

P3A, Major Procedure - Orthopedic - Hip Fracture Repair

27232, 27234, 27235, 27236, 27240, 27242, 27244, 27245, 27248

P3B, Major Procedure - Orthopedic - Hip Replacement

27125, 27126, 27127, 27130, 27131, 27132, 27134, 27135, 27137, 27138

P3C, Major Procedure - Orthopedic - Knee Replacement

27440, 27441, 27442, 27443, 27444, 27445, 27446, 27447

P3D, Major Procedure - Orthopedic - Other

20661, 20693, 20802, 20804, 20805, 20806, 20808, 20812, 20816, 20820, 20822, 20823, 20824, 20826, 20827, 20828, 20832, 20834, 20838, 20840, 20900, 20902, 20910, 20924, 20999, 21015, 21020, 21025, 21026, 21029, 21030, 21031, 21032, 21041, 21045, 21070, 21071, 21089, 21120, 21121, 21122, 21123, 21125, 21127, 21137, 21138, 21139, 21144, 21145, 21146, 21147, 21150, 21151, 21154, 21155, 21159, 21160, 21172, 21175, 21179, 21180, 21181, 21182, 21183, 21184, 21188, 21193, 21194, 21195, 21196, 21198, 21200, 21202, 21203, 21204, 21206, 21207, 21208, 21209, 21210, 21215, 21230, 21235, 21239, 21240, 21242, 21243, 21244, 21245, 21246, 21247, 21248, 21249, 21250, 21254, 21255, 21256, 21260, 21261, 21263, 21267, 21268, 21270, 21275, 21280, 21282, 21295, 21296, 21299, 21336, 21339, 21343, 21344, 21345, 21346, 21347, 21348, 21356, 21366, 21385, 21386, 21387, 21390, 21395, 21400, 21401, 21406, 21407, 21408, 21421, 21422, 21423, 21431, 21432, 21433, 21435, 21436, 21440, 21445, 21454, 21455, 21461, 21462, 21465, 21470, 21493, 21499, 21557, 21615, 21616, 21620, 21627, 21630, 21632, 21633, 21700, 21705, 21720, 21725, 21740, 21741, 21805, 21810, 21820, 21825, 21899, 21935, 22100, 22101, 22102, 22105, 22106, 22107, 22110, 22111, 22112, 22113, 22114, 22115, 22120, 22121, 22122, 22128, 22129, 22130, 22140, 22141, 22142, 22145, 22148, 22150, 22151, 22152, 22200, 22201, 22202, 22203, 22206, 22207, 22210, 22212, 22214, 22220, 22222, 22224, 22230, 22250, 22251, 22305, 22310, 22315, 22325, 22326, 22327, 22330, 22335, 22345, 22355, 22356, 22360, 22361, 22370, 22371, 22379, 22548, 22550, 22552, 22554, 22555, 22556, 22558, 22560, 22561, 22565, 22585, 22590, 22595, 22600, 22605, 22610, 22612, 22615, 22617, 22620, 22625, 22630, 22640, 22645, 22650, 22655, 22670, 22680, 22700, 22720, 22730, 22735, 22800, 22801, 22802, 22803, 22810, 22812, 22820, 22830, 22840, 22842, 22845, 22849, 22850, 22852, 22855, 22899, 22910, 22999, 23036, 23077, 23105, 23106, 23107, 23110, 23120, 23125, 23145, 23146, 23155, 23156, 23190, 23195, 23200, 23210, 23220, 23221, 23222, 23332, 23395, 23397, 23400, 23410, 23412, 23415, 23420, 23430, 23440, 23450, 23455, 23460, 23462, 23465, 23466, 23470, 23472, 23480, 23485, 23490, 23491, 23530, 23532, 23550, 23552, 23580, 23585, 23615, 23616, 23680, 23800, 23802, 23900, 23920, 23921, 23931, 24006, 24077, 24102, 24150, 24151, 24152, 24153, 24305, 24360, 24361, 24362, 24363, 24365, 24366, 24400, 24410, 24430, 24435, 24495, 24498, 24515, 24516, 24545, 24546, 24575, 24579, 24587, 24588, 24635, 24660, 24800, 24802, 24900, 24920, 24925, 24930, 24931, 24935, 24940, 24999, 25031, 25077, 25105, 25115, 25116, 25118, 25119, 25170, 25250, 25251, 25330, 25331, 25332, 25335, 25350, 25355, 25360, 25365, 25370, 25375, 25400, 25405, 25415, 25420, 25425, 25426, 25440, 25441, 25442, 25443, 25444, 25445, 25446, 25447, 25449, 25490, 25491, 25492, 25520, 25525, 25526, 25574, 25676, 25800, 25805, 25810, 25815, 25820, 25825, 25900, 25905, 25907, 25909, 25915, 25920, 25922, 25924, 25927, 25929, 25931, 25999, 26037, 26117, 26121, 26123, 26125, 26130, 26260, 26357, 26415, 26416, 26437, 26478, 26479, 26499, 26504, 26527, 26548, 26550, 26560, 26561, 26562, 26565, 26580, 26585, 26587, 26590, 26591, 26593, 26596, 26597, 26608, 26615, 26850, 26852, 26992, 27001, 27005, 27006, 27010, 27015, 27025, 27026, 27030, 27033, 27049, 27050, 27052, 27054, 27060, 27062, 27066, 27067, 27070, 27071, 27075, 27076, 27077, 27078, 27079, 27090, 27091, 27097, 27098, 27100, 27105, 27110, 27111, 27115, 27120, 27122, 27140, 27146, 27147, 27151, 27156, 27157, 27158, 27161, 27165, 27170, 27177, 27178, 27179, 27181, 27185, 27187, 27192, 27193, 27194, 27212, 27214, 27215, 27216, 27217, 27218, 27220, 27222, 27224, 27225, 27226, 27227, 27228, 27253, 27254, 27255, 27258, 27259, 27265, 27266, 27280, 27281, 27282, 27284, 27286, 27290, 27295, 27299, 27311, 27329, 27331, 27332, 27333, 27334, 27335, 27350, 27356, 27357, 27358, 27365, 27380, 27381, 27385, 27386, 27394, 27395, 27403, 27405, 27407, 27409, 27410, 27411, 27413, 27418, 27420, 27422, 27424, 27427, 27428, 27429, 27430, 27435, 27437, 27438, 27448, 27449, 27450, 27452, 27454, 27455, 27457, 27460, 27462, 27465, 27466, 27468, 27470, 27472, 27475, 27477, 27479, 27485, 27486, 27487, 27488, 27495, 27496, 27497, 27498, 27499, 27501, 27502, 27503, 27504, 27506, 27507, 27509, 27510, 27511, 27512, 27513, 27514, 27517, 27518, 27519, 27524, 27535, 27536, 27537, 27540, 27554, 27556, 27557, 27558, 27566, 27580, 27590, 27591, 27592, 27594, 27596, 27598, 27599, 27600, 27601, 27602, 27604, 27615, 27625, 27626, 27645, 27646, 27647, 27687, 27695, 27696, 27698, 27700, 27702, 27703, 27704, 27705, 27707, 27709, 27712, 27715, 27720, 27722, 27724, 27725, 27727, 27730, 27732, 27734, 27740, 27742, 27745, 27750, 27752, 27754, 27756, 27758, 27759, 27762, 27788, 27806, 27810, 27812, 27814, 27818, 27820, 27822, 27823, 27824, 27825, 27826, 27827, 27828, 27829, 27832, 27870, 27871, 27880, 27881, 27882, 27884, 27886, 27888, 27889, 27892, 27893, 27894, 27899, 28001, 28020, 28022, 28024, 28046, 28052, 28054, 28070, 28100, 28104, 28106, 28108, 28109, 28116, 28119, 28123, 28124, 28126, 28130, 28153, 28236, 28238, 28262, 28288, 28299, 28300, 28302, 28304, 28305, 28307, 28309, 28313, 28340, 28341, 28344, 28345, 28360, 28410, 28415, 28440, 28445, 28460, 28480, 28531, 28550, 28576, 28580, 28610, 28636, 28640, 28666, 28675, 28705, 28715, 28725, 28730, 28735, 28737, 28740, 28800, 28805, 28810, 28899

P4A, Eye Procedures - Corneal transplant

65710, 65720, 65725, 65730, 65740, 65745, 65750, 65755, 65760, 65765, 65767, 65770

P4B, Eye Procedures - Cataract Rem/Lens Ins

66830, 66840, 66850, 66852, 66915, 66920, 66930, 66940, 66945, 66983, 66984, 66985, 66986

P4C, Eye Procedures - Retinal Detachment

67101, 67103, 67104, 67105, 67106, 67107, 67108, 67109, 67110, 67112, 67120, 67141, 67142, 67143, 67144, 67145

P4D, Eye Procedures - Treatment of Retinal Lesions

67208, 67210, 67212, 67213, 67214, 67216, 67218, 67222, 67223, 67224, 67227, 67228

P4E, Eye - Other

65091, 65093, 65101, 65103, 65105, 65110, 65112, 65114, 65125, 65130, 65135, 65140, 65150, 65155, 65175, 65230, 65235, 65245, 65260, 65265, 65270, 65272, 65273, 65275, 65280, 65285, 65290, 65300, 65400, 65410, 65420, 65426, 65771, 65772, 65775, 65800, 65805, 65810, 65815, 65850, 65855, 65860, 65865, 65870, 65875, 65880, 65900, 65920, 65930, 66020, 66030, 66130, 66150, 66155, 66160, 66165, 66170, 66180, 66185, 66220, 66225, 66250, 66500, 66505, 66600, 66605, 66625, 66630, 66635, 66680, 66682, 66700, 66701, 66702, 66710, 66720, 66721, 66740, 66741, 66761, 66762, 66770, 66800, 66801, 66802, 66820, 66821, 66825, 66980, 66999, 67005, 67010, 67015, 67025, 67028, 67030, 67031, 67035, 67036, 67038, 67039, 67040, 67102, 67115, 67121, 67146, 67226, 67250, 67255, 67299, 67311, 67312, 67313, 67314, 67316, 67318, 67320, 67331, 67332, 67334, 67335, 67340, 67343, 67345, 67350, 67399, 67400, 67405, 67412, 67413, 67414, 67415, 67420, 67430, 67440, 67445, 67450, 67500, 67505, 67515, 67550, 67560, 67570, 67599, 67715, 67801, 67805, 67808, 67830, 67835, 67880, 67882, 67900, 67901, 67902, 67903, 67904, 67906, 67907,

P4E, Eye - Other (cont)

67908, 67909, 67911, 67914, 67916, 67917, 67921, 67923, 67924, 67930, 67935, 67950, 67961, 67966, 67971, 67973, 67974, 67975, 67999, 68130, 68320, 68325, 68326, 68328, 68330, 68335, 68340, 68360, 68362, 68399, 68500, 68505, 68510, 68520, 68540, 68550, 68700, 68720, 68745, 68750, 68761, 68830, 68899

P5A, Ambulatory Procedures - Skin

10141, 11042, 11043, 11044, 11200, 11201, 11401, 11402, 11403, 11404, 11406, 11421, 11422, 11423, 11424, 11426, 11441, 11442, 11443, 11444, 11446, 11471, 11600, 11601, 11602, 11603, 11604, 11606, 11620, 11621, 11622, 11623, 11624, 11626, 11640, 11641, 11642, 11643, 11644, 11646, 11750, 11770, 11771, 11772, 12006, 12007, 12017, 12018, 12036, 12037, 12046, 12047, 12056, 12057, 13101, 13121, 13132, 13152, 13300, 14001, 14020, 14021, 14041, 14060, 14061, 14300, 14350, 15000, 15050, 15100, 15101, 15200, 15201, 15220, 15221, 15240, 15241, 15260, 15261, 15350, 15410, 15412, 15414, 15416, 15500, 15505, 15510, 15515, 15540, 15545, 15550, 15555, 15570, 15572, 15574, 15576, 15580, 15600, 15610, 15620, 15625, 15630, 15650, 15700, 15710, 15720, 15730, 15732, 15734, 15736, 15738, 15740, 15745, 15750, 15755, 15760, 15770, 15840, 15841, 15842, 15845, 15850, 15851, 15876, 15877, 15878, 15879, 15920, 15922, 15931, 15941, 15942, 15943, 15944, 15945, 15946, 15950, 15951, 15952, 15954, 15955, 15956, 15958, 15960, 15961, 15964, 15965, 15966, 15970, 15971, 15972, 15973, 15974, 15975, 15980, 15981, 15982, 15983, 16010, 16015, 17106, 17107, 17108, 17260, 17261, 17262, 17263, 17264, 17266, 17270, 17271, 17272, 17273, 17274, 17276, 17280, 17281, 17282, 17283, 17284, 17286, 96910, 96912, 96913

P5B, Ambulatory Procedures - Musculoskeletal

20005, 20205, 20225, 20240, 20245, 20250, 20251, 20525, 20650, 20660, 20662, 20663, 20665, 20680, 20694, 20912, 20920, 20922, 20926, 20955, 20960, 20962, 20969, 20970, 20971, 20972, 20973, 20975, 21010, 21011, 21034, 21040, 21044, 21050, 21051, 21060, 21061, 21100, 21310, 21315, 21320, 21325, 21330, 21335, 21338, 21340, 21355, 21360, 21365, 21450, 21451, 21452, 21453, 21480, 21485, 21490, 21494, 21495, 21501, 21502, 21510, 21511, 21555, 21556, 21600, 21610, 21750, 22505, 22900, 23000, 23020, 23030, 23035, 23040, 23042, 23044, 23066, 23076, 23100, 23101, 23130, 23140, 23150, 23170, 23171, 23172, 23173, 23174, 23175, 23180, 23181, 23182, 23183, 23184, 23185, 23331, 23405, 23406, 23505, 23515, 23605. 23610, 23625, 23630, 23655, 23658, 23660, 23665, 23670, 23675, 23700, 23930, 23935, 23936, 24000, 24001, 24075, 24076, 24100, 24101, 24105, 24110, 24115, 24116, 24120, 24125, 24126, 24130, 24134, 24135, 24136, 24137, 24138, 24139, 24140, 24144, 24145, 24146, 24147, 24148, 24155, 24160, 24164, 24201, 24301, 24310, 24320, 24330, 24331, 24340, 24342, 24350, 24351, 24352, 24354, 24356, 24420, 24470, 24505, 24506, 24510, 24530, 24531, 24535, 24536, 24538, 24540, 24542, 24565, 24570, 24577, 24578, 24580, 24581, 24583, 24585, 24586, 24605, 24610, 24615, 24620, 24625, 24655, 24665, 24666, 24675, 24680, 24685, 24700, 25000, 25005, 25020, 25023, 25028, 25035, 25036, 25040, 25041, 25066, 25076, 25085, 25100, 25101, 25107, 25110, 25111, 25112, 25120, 25125, 25126, 25130, 25135, 25136, 25145, 25146, 25150, 25151, 25153, 25210, 25215, 25230, 25240, 25248, 25260, 25263, 25265, 25270, 25272, 25274, 25280, 25290, 25295, 25300, 25301, 25310, 25312, 25315, 25316, 25317, 25318, 25320, 25390, 25391, 25392, 25393, 25450, 25455, 25505, 25510, 25515, 25535, 25540, 25545, 25565, 25570, 25575, 25605, 25610, 25611, 25615, 25620, 25626, 25628, 25635, 25640, 25645, 25660, 25665, 25670, 25675, 25680, 25685, 25690, 25695, 25700, 26011, 26020, 26025, 26030, 26032, 26034, 26035, 26040, 26045, 26055, 26060, 26070, 26075, 26080, 26100, 26105, 26110, 26115, 26116, 26120, 26122, 26124, 26126, 26128, 26135, 26140, 26145, 26160, 26170, 26180, 26200, 26205, 26206, 26210, 26215, 26216, 26230, 26235, 26250, 26255, 26261, 26350, 26352, 26356, 26358, 26370, 26372, 26373, 26390, 26392, 26410, 26412, 26418, 26420, 26426, 26428, 26432, 26433, 26434, 26440, 26442, 26445, 26449, 26450, 26455, 26460, 26471, 26474, 26476, 26477, 26480, 26483, 26485, 26489, 26490, 26492, 26494, 26496, 26497, 26498, 26500, 26502, 26508, 26510, 26516, 26517, 26518, 26520, 26525, 26530, 26531, 26535, 26536, 26540, 26541, 26542, 26545, 26552, 26555, 26557, 26558, 26559, 26567, 26568, 26570, 26574, 26605, 26607, 26610, 26645, 26650, 26655, 26660, 26665, 26675, 26676, 26680, 26685, 26686, 26705, 26706, 26710, 26715, 26727, 26730, 26735, 26744, 26746, 26765, 26775, 26780, 26785, 26820, 26841, 26842, 26843, 26844, 26860, 26861, 26862, 26863, 26910, 26951, 26952, 26990, 26991, 26995, 27000, 27002, 27003, 27004, 27031, 27035, 27040, 27041, 27047, 27048, 27065, 27080, 27087, 27088, 27196, 27201, 27202, 27252, 27257, 27275, 27301, 27303, 27304, 27305, 27306, 27307, 27310, 27315, 27320, 27324, 27327, 27328, 27330, 27345, 27355, 27360, 27361, 27372, 27390, 27391, 27392, 27393, 27396, 27397, 27400, 27425, 27522, 27532, 27534, 27552, 27562, 27564, 27570, 27603, 27605, 27606, 27607, 27608, 27610, 27611, 27612, 27620, 27630, 27635, 27637, 27638, 27640, 27641, 27650, 27652, 27654, 27656, 27658, 27659, 27664, 27665, 27675, 27676, 27680, 27681, 27685, 27686, 27690, 27691, 27692, 27764, 27766, 27781, 27782, 27784, 27790, 27792, 27802, 27804, 27831, 27842, 27844, 27846, 27848, 27860, 28002, 28003, 28004, 28005, 28006, 28008, 28010, 28011, 28030, 28035, 28045, 28050, 28062, 28072, 28080, 28086, 28088, 28090, 28092, 28102, 28103, 28107, 28110, 28111, 28112, 28113, 28114, 28118, 28120, 28121, 28122, 28135, 28140, 28171, 28173, 28175, 28193, 28200, 28202, 28208, 28210, 28222, 28225, 28226, 28230, 28232, 28234, 28240, 28250, 28260, 28261, 28264, 28270, 28272, 28285, 28286, 28290, 28292, 28293, 28294, 28296, 28297, 28298, 28306, 28308, 28310, 28312, 28315, 28320, 28322, 28405, 28406, 28420, 28435, 28436, 28465, 28485, 28500, 28505, 28520, 28525, 28545, 28546, 28555, 28575, 28585, 28605, 28606, 28615, 28635, 28645, 28665, 28670, 28750, 28755, 28760, 28820, 28825

P5C, Ambulatory Procedures - Inguinal Hernia Repair

49505, 49506, 49510, 49515, 49520, 49525, 49550, 49552, 49555

P5D, Ambulatory Procedures - Lithotripsy

50590

P5E, Ambulatory Procedures - Other

19020, 19101, 19120, 19121, 19140, 19160, 19182, 19355, 30115, 30116, 30117, 30118, 30125, 30130, 30140, 30310, 30320, 30400, 30410, 30420, 30430, 30435, 30450, 30500, 30520, 30580, 30600, 30620, 30630, 30915, 30920, 31020, 31021, 31030, 31031, 31032, 31033, 31070, 31200, 31201, 31205, 31612, 31613, 31614, 31700, 31717, 31719, 31720, 37609, 37700, 37701, 37720, 37721, 37730, 37731, 37735, 37737, 37760, 37780, 37781, 37785, 37787, 38305, 38308, 38500, 38510, 38520, 38530, 38540, 38542, 38550, 38555, 38700, 38701, 38740, 38745, 38760, 40500, 40510, 40520, 40525, 40527, 40530, 40650, 40654, 40801, 40805, 40814, 40816, 40818, 40831, 40840, 40842, 40843, 40844, 40845, 41000, 41005, 41100, 41105, 41114, 41115, 41116, 41120, 41251, 41806, 41826, 41827, 42000, 42104, 42106, 42107, 42120, 42140, 42182, 42305, 42320, 42325, 42335, 42340, 42408, 42410, 42440, 42450, 42500, 42505, 42507, 42508, 42509, 42600, 42665, 42699, 42720, 42725, 42806, 42808, 42810, 42815, 42860, 42870, 42880, 42900, 42950, 42955, 43246, 43326, 43450, 43451, 43453, 43455, 43456, 43750, 43830, 43831, 43832, 44340, 45000, 45005, 45020, 45170, 45180, 45181, 45500, 45505, 45521, 45560, 45900, 45905, 45910, 45915, 46000, 46032, 46040, 46045, 46060, 46080, 46200, 46211, 46250, 46255, 46257, 46258, 46260, 46261, 46262, 46270, 46275, 46280, 46285, 46530, 46750, 46753, 46754, 46760, 46924, 46937, 46938, 47000, 49400, 49401, 49420, 49426, 49501, 49540, 49560, 49570, 49575, 49581, 49590, 50020, 50040, 50200, 50390, 50392, 50393, 50396, 50398, 50974, 50976, 50978, 50980, 51005, 51010, 51710, 52500, 52650, 52700, 53000, 53010, 53020, 53021, 53040, 53220, 53230, 53235, 53240, 53265, 53275, 53400, 53405, 53410, 53420, 53425, 53430, 53440, 53447, 53449, 53450, 53460, 53502, 53510, 53515, 53520, 53600, 53601, 53605, 53620, 53621, 53660, 53661, 53665, 54001, 54015, 54110, 54115, 54120, 54152, 54154, 54161, 54205, 54220, 54440, 54505, 54506, 54510, 54520, 54521, 54530, 54670, 54680, 54700, 54820, 54830, 54840, 54860, 54861, 54900, 54901, 55040, 55041, 55060, 55120, 55150, 55175, 55180, 55400, 55401, 55500, 55520, 55530, 55535, 55540, 55605, 55650, 55651, 55680, 55705, 55720, 56000, 56405, 56440, 56515, 56605, 56606, 56740, 57020, 57105, 57130, 57400, 57520, 57720, 57820, 58120, 58320, 58345, 58350, 58900, 58970, 58974, 58976, 59320, 59325, 59801, 59811, 59812, 59820, 59821, 59840, 59841, 59870, 60200, 60280, 61020, 61026, 61050, 61070, 62270, 62273, 62274, 62275, 62276, 62277, 62278, 62279, 62281, 62287, 62288, 62289, 62298, 64408, 64410, 64415, 64417, 64420, 64421, 64430, 64442, 64443, 64510, 64520, 64530, 64600, 64605, 64610, 64622, 64623, 64630, 64702, 64704, 64708, 64712, 64713, 64714, 64716, 64718, 64719, 64721, 64722, 64726, 64727, 64732, 64734, 64736, 64738, 64740, 64742, 64744, 64772, 64774, 64776, 64778, 64782, 64783, 64784, 64786, 64787, 64788, 64790, 64795, 64802, 64803, 64830, 64831, 64832, 64834, 64835, 64836, 64837, 64840, 64856, 64857, 64872, 64874, 64876, 64885, 64886, 64890, 64891, 64892, 64893, 64895, 64896, 64897, 64898, 64901, 64902, 64905, 64907, 69105, 69110, 69120, 69140, 69145, 69150, 69205, 69420, 69421, 69436, 69437, 69440, 69450, 69501, 69620, 69631, 69632, 69633, 69635, 69636, 69637, 69641, 69642, 69643, 69644, 69645, 69646, 69650, 69660, 69661, 69666, 69667, 69670, 69676, 69677, 69700, 69720, 69725, 69740, 69745, 74283, 76003, 76938, 76939, 76942, 76943, 76946, 76947, 76948, 76949, 77610, 77615, 79000, 79001, 79020, 79030, 79100, 79300, 79400, 79420, 79440, 88000, 88005, 88007, 88012, 88014, 88016, 88020, 88025, 88027, 88028, 88029, 88036, 88037, 88040, 88045, 88171, 92960, 99180, 99182

P6A, Minor Procedures - Skin

10000, 10001, 10002, 10003, 10020, 10040, 10060, 10061, 10080, 10081, 10100, 10101, 10120, 10121, 10140, 10160, 10180, 11000, 11001, 11040, 11041, 11050, 11051, 11052, 11060, 11061, 11062, 11100, 11101, 11300, 11301, 11302, 11303, 11304, 11305, 11306, 11307, 11308, 11309, 11310, 11311, 11312, 11313, 11400, 11420, 11440, 11450, 11451, 11462, 11463, 11470, 11700, 11701, 11710, 11711, 11730, 11731, 11732, 11740, 11752, 11760, 11762, 11765, 11900, 11901, 11920, 11921, 11922, 11950, 11951, 11952, 11954, 11975, 11976, 11977, 12001, 12002, 12004, 12005, 12011, 12013, 12014, 12015, 12016, 12020, 12021, 12031, 12032, 12034, 12035, 12041, 12042, 12044, 12045, 12051, 12052, 12053, 12054, 12055, 13100, 13120, 13131, 13150, 13151, 13160, 14000, 14040, 15775, 15776, 15780, 15781, 15782, 15783, 15786, 15787, 15790, 15791, 15810, 15811, 15819, 15820, 15821, 15822, 15823, 15824, 15825, 15826, 15828, 15829, 15852, 15860, 15875, 16000, 16020, 16025, 16030, 16035, 16040, 16041, 16042, 17000, 17001, 17002, 17010, 17100, 17101, 17102, 17104, 17105, 17110, 17200, 17201, 17250, 17300, 17301, 17303, 17304, 17305, 17306, 17307, 17310, 17340, 17360, 17380, 17999, 36468, 36469, 96999

P6B, Minor Procedures-Musculoskeletal

20000, 20010, 20200, 20206, 20220, 20500, 20520, 20550, 20600, 20605, 20610, 20615, 20670, 20690, 20691, 20692, 20950, 20974, 20976, 21079, 21080, 21081, 21082, 21083, 21084, 21085, 21086, 21087, 21088, 21110, 21300, 21337, 21497, 21550, 21800, 21920, 21925, 21930, 22010, 22011, 22012, 22030, 22031, 22032, 22033, 23031, 23065, 23075, 23330, 23500, 23510, 23520, 23525, 23540, 23545, 23570, 23575, 23600, 23620, 23650, 24065, 24066, 24200, 24500, 24560, 24576, 24600, 24640, 24650, 24670, 25065, 25075, 25500, 25530, 25560, 25600, 25622, 25624, 25630, 25650, 26010, 26236, 26262, 26320, 26600, 26641, 26670, 26700, 26720, 26725, 26740, 26742, 26743, 26750, 26755, 26756, 26760, 26770, 26776, 27086, 27175, 27176, 27190, 27191, 27195, 27200, 27210, 27211, 27230, 27238, 27246, 27250, 27256, 27323, 27340, 27500, 27508, 27516, 27520, 27530, 27538. 27550, 27560, 27613, 27614, 27618, 27619, 27760, 27780, 27786, 27800, 27808, 27816, 27830, 27840, 28043, 28060, 28150, 28160, 28190, 28192, 28220, 28280, 28400, 28430, 28450, 28455, 28456, 28470, 28475, 28476, 28490, 28495, 28496, 28510, 28515, 28530, 28540, 28570, 28600, 28630, 28660, 29000, 29010, 29015, 29020, 29025, 29035, 29040, 29044, 29046, 29049, 29055, 29058, 29065, 29075, 29085, 29105, 29125, 29126, 29130, 29131, 29200, 29220, 29240, 29260, 29280, 29305, 29325, 29345, 29355, 29358, 29365, 29405, 29425, 29435, 29440, 29450, 29455, 29505, 29515, 29520, 29530, 29540, 29550, 29580, 29590, 29700, 29705, 29710, 29715, 29720, 29730, 29740, 29750, 29751, 29799, 36680

P6C - Minor Procedures, Other (MFS)

M0101, M0702, M0704, M0706, M0708, M0710, M0722, M0724, M0726, M0728, M0730, M0994, Q0091, 19000, 19001, 19030, 19100, 19396, 30000, 30020, 30100, 30110, 30120, 30124, 30200, 30210, 30220, 30300, 30460, 30462, 30560, 30801, 30802, 30901, 30903, 30905, 30906, 30930, 31000, 31502, 36400, 36405, 36406, 36410, 36420, 36425, 36430, 36431, 36440, 36470, 36471, 36485, 36494, 36600, 38300, 38505, 40490, 40652, 40800, 40804, 40806, 40808, 40810, 40812, 40819, 40820, 40830, 41006, 41007, 41008, 41009, 41010, 41015, 41016, 41017, 41018, 41108, 41110, 41112, 41113, 41250, 41500, 41510, 41520, 41800, 41805, 41825, 42100, 42160, 42180, 42280, 42281, 42300, 42310, 42330, 42400, 42405, 42650, 42660, 42700, 42800, 42802, 42804, 42809, 42960, 43600, 43760, 43761, 43765, 44100, 45100, 45105, 45520, 46030, 46050, 46070, 46083, 46210, 46220, 46221, 46230, 46320, 46500, 46510, 46900, 46910, 46916, 46917, 46922, 46930, 46934, 46935, 46936, 46940, 46942, 46945, 46946, 47525, 47530, 49180, 50686, 50688, 51000, 51700, 51705, 51725, 51726, 51727, 51728, 51729, 51730, 51732, 51736, 51739, 51741, 51772, 51774, 51785, 51786, 51788, 51792, 51795, 51797, 51860, 51880, 52450, 52510, 53060, 53080, 53085, 53200, 53250, 53260, 53270, 53442, 53640, 53670, 53675, 54050, 54055, 54056, 54057, 54060, 54065, 54100, 54105, 54150, 54160, 54200, 54235, 54250, 54450, 54500, 54800, 55000, 55100, 55600, 55601, 55700, 55870, 56100, 56400, 56420, 56441, 56500, 56501, 56505, 56506, 56507, 56510, 56600, 56720, 57050, 57057, 57060, 57061, 57063, 57100, 57150, 57160, 57170, 57180, 57500, 57505, 57510, 57511, 57513, 57600, 57620, 57800, 58100, 58102, 58103, 58300, 58301, 58310, 58311, 58972, 59000, 59010, 59011, 59012, 59015, 59020, 59025, 59030, 59031, 59050, 59200, 59300, 59305, 59414, 60000, 60100, 64400, 64402, 64405, 64412, 64413, 64418, 64425, 64435, 64440, 64441, 64445, 64450, 64505, 64508, 64550, 64553, 64555, 64560, 64565, 64573, 64575, 64577, 64580, 64585, 64590, 64595, 64612, 64613, 64620, 64640, 64680, 65205, 65210, 65220, 65222, 65240, 65286, 65430, 65435, 65436, 65450, 65600, 65820, 65830, 67700, 67710, 67800, 67810, 67820, 67825, 67840, 67850, 67875, 67915, 67922, 67938, 68020, 68040, 68100, 68110, 68115, 68135, 68200, 68400, 68420, 68440, 68525, 68530, 68705, 68760, 68770, 68800, 68820, 68825, 68840, 69000, 69005, 69020, 69100, 69200, 69210, 69220, 69222, 69223, 69400, 69401, 69405, 69410, 69424, 69425, 69433, 74235, 76970, 85095, 85096, 85097, 85100, 85101, 85102, 85103, 85105, 85109, 86342, 88170, 89100, 89105, 89350, 90749, 90780, 90781, 90782, 90783, 90784, 90788, 90798, 90799, 91000, 91055, 91060, 91100, 91105, 92275, 92358, 92371, 92538, 92953 94640, 94642, 94650, 94651, 94652, 94664, 94665, 94667, 94668, 95829, 95830, 95860, 95861, 95863, 95864, 95867, 95868, 95869, 95872, 95875, 95953, 95954, 95955, 95956, 95958, 96900, 97010, 97012, 97014, 97016, 97018, 97020, 97022, 97024, 97026, 97028, 97039, 97050, 97110, 97112, 97114, 97116, 97118, 97120, 97122, 97124, 97126, 97128, 97139, 97145, 97200, 97201, 97220, 97221, 97240, 97241, 97260, 97261, 97500, 97501, 97520, 97521, 97530, 97531, 97540, 97541, 97740, 97741, 97799, 99185, 99186, 99190, 99191, 99192, 99195

P6D - Minor Procedures, Other (non MFS)

M0910, 30111, 30800, 30805, 30820, 30902, 30904, 31001, 41820, 41821, 41822, 41823, 41828, 41830, 41850, 58101, 65825, 69090, 69221, 69434, 69611, 85060, 85667, 86128, 86130, 86404, 90701, 90702, 90703, 90704, 90705, 90706, 90707, 90708, 90709, 90712, 90713, 90714, 90717, 90718, 90719, 90724, 90725, 90726, 90727, 90728, 90731, 90732, 90733, 90737, 90741, 90742, 92370, 99170

P7A, Oncology - Radiation Therapy

76950, 76960, 77261, 77262, 77263, 77280, 77285, 77290, 77299, 77300, 77305, 77310, 77315, 77321, 77326, 77327, 77328, 77331, 77332, 77333, 77334, 77336, 77370, 77399, 77400, 77401, 77402, 77403, 77404, 77405, 77406, 77407, 77408, 77409, 77410, 77411, 77412, 77413, 77414, 77415, 77416, 77417, 77420, 77425, 77430, 77431, 77465, 77470, 77499, 77750, 77761, 77762, 77763, 77776, 77777, 77778, 77781, 77782, 77783, 77784, 77789, 77790, 77799, 79035, 79200, 79900

P7B, Oncology - Other

M0024, M0072, M0080, 51720, 77600, 77605, 77620, 90790, 90791, 96400, 96408, 96410, 96412, 96414, 96420, 96422, 96423, 96425, 96440, 96445, 96450, 96500, 96501, 96504, 96505, 96508, 96509, 96510, 96511, 96512, 96520, 96524, 96526, 96530, 96535, 96538, 96540, 96545

P8A, Endoscopy - Arthroscopy

29800, 29804, 29815, 29819, 29820, 29821, 29822, 29823, 29825, 29826, 29830, 29834, 29835, 29836, 29837, 29838, 29840, 29843, 29844, 29845, 29846, 29847, 29848, 29850, 29851, 29855, 29856, 29870, 29871, 29872, 29874, 29875, 29876, 29877, 29879, 29880, 29881, 29882, 29883, 29884, 29885, 29886, 29887, 29888, 29889, 29890, 29894, 29895, 29896, 29897, 29898

P8B, Endoscopy - Upper G.I.

43200, 43202, 43204, 43215, 43217, 43219, 43220, 43225, 43226, 43227, 43228, 43234, 43235, 43239, 43241, 43243, 43245, 43247, 43251, 43255, 43258, 43260, 43262, 43263, 43264, 43265, 43267, 43268, 43269, 43271, 43272

P8C, Endoscopy - Sigmoidoscopy

45300, 45302, 45303, 45305, 45307, 45310, 45315, 45317, 45319, 45320, 45321, 45330, 45331, 45332, 45333, 45334, 45336, 45337

P8D, Endoscopy - Colonoscopy

44388, 44389, 44390, 44391, 44392, 44393, 45355, 45360, 45365, 45367, 45368, 45369, 45370, 45371, 45372, 45378, 45379, 45380, 45382, 45383, 45385

P8E, Endoscopy - Cystoscopy

52000, 52005, 52007, 52010, 52100, 52105, 52107, 52202, 52204, 52212, 52214, 52222, 52224, 52232, 52234, 52235, 52240, 52250, 52260, 52265, 52270, 52275, 52276, 52277, 52280, 52281, 52282, 52283, 52285, 52290, 52300, 52305, 52310, 52315, 52317, 52318, 52320, 52325, 52330, 52332, 52334, 52335, 52336, 52337, 52338, 52339, 52340

P8F, Endoscopy - Bronchoscopy

31615, 31620, 31621, 31622, 31625, 31626, 31627, 31628, 31629, 31630, 31631, 31635, 31640, 31641, 31645, 31646, 31650, 31651, 31659

P8G, Endoscopy - Laparoscopic Cholecystectomy

49310, 49311, 49315

P8H, Endoscopy, Laryngoscopy

31505, 31510, 31511, 31512, 31513, 31515, 31520, 31525, 31526, 31527, 31528, 31529, 31530, 31531, 31535, 31536, 31540, 31541, 31560, 31561, 31570, 31571, 31575, 31576, 31577, 31578, 31579

P8I, Endoscopy, Other

23356, 27373, 27374, 27376, 27377, 27378, 27379, 27436, 27851, 27853, 31071, 31250, 31252, 31254, 31255, 31256, 31258, 31260, 31263, 31265, 31267, 31268, 31270, 31275, 31277, 31285, 32700, 32705, 39400, 43834, 44360, 44361, 44363, 44364, 44366, 44369, 44372, 44373, 44380, 44382, 44385, 44386, 45386, 46600, 46602, 46604, 46606, 46608, 46610, 46612, 46614, 47550, 47552, 47553, 47554, 47555, 47556, 49300, 49301, 49302, 49303, 50550, 50551, 50552, 50553, 50555, 50557, 50559, 50560, 50561, 50570, 50572, 50574, 50576, 50578, 50580, 50951, 50952, 50953, 50955, 50957, 50959, 50960, 50961, 50970, 50972, 52605, 52800, 52805, 56300, 56301, 56302, 56303, 56304, 56305, 56306, 56307, 56308, 56309, 56350, 56351, 56352, 56353, 56354, 56355, 56356, 57450, 57451, 57452, 57454, 57460, 58980, 58982, 58983, 58984, 58985, 58986, 58987, 58988, 58990, 58992, 58994, 58995, 58996, 59150, 59151, 74328, 74329, 74330, 74340, 92511

P9A - Dialysis Services (MFS)

90935, 90937, 90945, 90947, 90997, 90999

P9B - Dialysis Services (non MFS)

M0916, M0920, M0928, M0931, M0932, M0936, M0937, M0945, M0974, M0978, M0982, 90918, 90919, 90920, 90921, 90922, 90940, 90941, 90942, 90943, 90944, 90946, 90948, 90949, 90950, 90951, 90952, 90953, 90954, 90955, 90956, 90957, 90958, 90959, 90960, 90961, 90962, 90963, 90964, 90965, 90966, 90967, 90968, 90969, 90970, 90971, 90972, 90973, 90974, 90975, 90976, 90977, 90978, 90979, 90980, 90981, 90982, 90983, 90984, 90985, 90986, 90987, 90988, 90989, 90990, 90991, 90992, 90993, 90994, 90995, 90996, 90998

(3) Imaging

I1A, Standard Imaging - Chest

71010, 71015, 71020, 71021, 71022, 71023, 71030, 71034, 71035

I1B, Standard Imaging - Musculoskeletal

70100, 70110, 70120, 70130, 70140, 70150, 70160, 70250, 70260, 71100, 71101, 71110, 71111, 71120, 71130, 72010, 72020, 72040, 72050, 72052, 72069, 72070, 72072, 72074, 72080, 72090, 72100, 72110, 72114, 72120, 72170, 72180, 72190, 72200, 72202, 72220, 73000, 73010, 73020, 73030, 73040, 73041, 73050, 73060, 73070, 73080, 73085, 73086, 73090, 73092, 73100, 73110, 73115, 73116, 73120, 73130, 73140, 73500, 73510, 73520, 73525, 73526, 73530, 73531, 73540, 73550, 73560, 73562, 73564, 73565, 73570, 73580, 73581, 73590, 73592, 73600, 73610, 73615, 73616, 73620, 73630, 76020, 76040, 76061, 76062, 76065, 76066

I1C, Standard Imaging - Breast

76086, 76087, 76088, 76089, 76090, 76091, 76092, 76096, 76097, 76098

I1D, Standard Imaging - Contrast G.I.

74210, 74220, 74230, 74240, 74241, 74245, 74246, 74247, 74249, 74250, 74260, 74270, 74280, 76010

I1E, Standard Imaging - Nuclear Medicine

78000, 78001, 78003, 78006, 78007, 78010, 78011, 78015, 78016, 78017, 78018, 78070, 78075, 78099, 78102, 78103, 78104, 78110, 78111, 78120, 78121, 78122, 78130, 78135, 78140, 78160, 78162, 78170, 78172, 78185, 78186, 78190, 78191, 78192, 78193, 78195, 78199, 78201, 78202, 78205, 78215, 78216, 78220, 78223, 78225, 78230, 78231, 78232, 78258, 78261, 78262, 78264, 78270, 78271, 78272, 78276, 78278, 78280, 78282, 78290, 78291, 78299, 78300, 78305, 78306, 78310, 78315, 78320, 78350, 78351, 78380, 78381, 78399, 78401, 78402, 78403, 78404, 78407, 78411, 78412, 78414, 78415, 78418, 78419, 78420, 78422, 78424, 78425, 78428, 78435, 78445, 78455, 78457, 78458, 78460, 78461, 78462, 78463, 78464, 78465, 78466, 78467, 78468, 78469, 78470, 78471, 78472, 78473, 78474, 78475, 78476, 78477, 78478, 78479, 78480, 78481, 78483, 78484, 78485, 78486, 78487, 78489, 78499, 78580, 78581, 78582, 78584, 78585, 78586, 78587, 78591, 78593, 78594, 78596, 78599, 78600, 78601, 78605, 78606, 78607, 78610, 78615, 78630, 78635, 78640, 78645, 78650, 78652, 78655, 78660, 78699, 78700, 78701, 78704, 78707, 78710, 78715, 78720, 78725, 78726, 78727, 78730, 78740, 78760, 78761, 78799, 78800, 78801, 78802, 78803, 78805, 78806, 78890, 78891, 78895, 78990, 78999, 79999

I1F, Standard Imaging - Other

R0070, R0071, R0072, R0073, R0074, R0075, 20501, 21116, 23350, 24220, 25246, 27093, 27095, 27370, 27648, 31708, 36000, 36001, 38790, 38791, 42550, 50394, 50684, 50690, 51600, 51605, 51610, 54230, 55300, 58340, 68850, 70030, 70040, 70050, 70134, 70170, 70171, 70190, 70200, 70210, 70220, 70230, 70231, 70240, 70300, 70310, 70320, 70328, 70330, 70332, 70333, 70350, 70355, 70360, 70370, 70371, 70373, 70374, 70380, 70390, 70391, 71000, 71038, 71040, 71041, 71060, 71061, 73650, 73660, 74000, 74010, 74020, 74022, 74285, 74290, 74291, 74300, 74301, 74305, 74310, 74315, 74400, 74405, 74410, 74415, 74420, 74425, 74426, 74430, 74431, 74440, 74441, 74445, 74446, 74450, 74451, 74455, 74456, 74710, 74720, 74725, 74730, 74731, 74740, 74741, 74742, 74770, 74771, 74775, 76080, 76081, 76100, 76101, 76102, 76120, 76125, 76130, 76135, 76137, 76140, 76150, 76350, 76499, 93280

I2A, Advanced Imaging - CAT: Head

70450, 70460, 70470, 70480, 70481, 70482

12B, Advanced Imaging - CAT: Other

R0065, 70486, 70487, 70488, 70490, 70491, 70492, 71250, 71260, 71270, 72125, 72126, 72127, 72128, 72129, 72130, 72131, 72132, 72133, 72192, 72193, 72194, 73200, 73201, 73202, 73700, 73701, 73702, 74150, 74160, 74170, 76070, 76355, 76360, 76361, 76365, 76366, 76370, 76375, 76380

12C, Advanced Imaging - MRI: Brain

70550, 70551, 70552, 70553

12D, Advanced Imaging - MRI: Other

70336, 70540, 71550, 72140, 72141, 72142, 72143, 72144, 72146, 72147, 72148, 72149, 72156, 72157, 72158, 72196, 73220, 73221, 73720, 73721, 74181, 75552, 76400

13A, Echography - Eye

76511, 76512, 76513, 76515, 76516, 76517, 76519, 76529, 76530

13B, Echography - Abdomen/Pelvis

76700, 76705, 76770, 76775, 76778, 76805, 76810, 76815, 76816, 76818, 76825, 76826, 76827, 76828, 76830, 76855, 76856, 76857

13C, Echography - Heart

76620, 76625, 76627, 76628, 76629, 76632, 93300, 93305, 93307, 93308, 93309, 93312, 93313, 93314, 93320, 93321, 93325

13D, Echography - Carotid Arteries

93870, 93880, 93882

13E, Echography - Prostate, Transrectal

76872

13F, Echography - Other

76500, 76505, 76506, 76535, 76536, 76550, 76601, 76604, 76640, 76645, 76800, 76870, 76880, 76925, 76926, 76986, 76990, 76991, 76999, 93925, 93926, 93930, 93931, 93970, 93971, 93975, 93976, 93978, 93979, 93980, 93981

14A, Imaging/Procedure - Heart,Inc Cardiac Cath

75500, 75501, 75505, 75506, 75507, 75509, 75519, 75520, 75523, 75524, 75527, 75528, 75750, 75751, 75752, 75753, 75754, 75755, 75756, 75757, 75762, 75764, 75766, 75767, 93541, 93542, 93543, 93544, 93545, 93546, 93547, 93548, 93549, 93550, 93551, 93552, 93553

14B, Imaging/Procedure - Other

31656, 31710, 31715, 36010, 36100, 36101, 36120, 36140, 36145, 36160, 36200, 36210, 36215, 36220, 36230, 36240, 36245, 36250, 38200, 47500, 62284, 62290, 62291, 70010, 70011, 70015, 70016, 70020, 72240, 72241, 72255, 72256, 72265, 72266, 72270, 72271, 72285, 72286, 72295, 72296, 74320, 74321, 74470, 74471, 75600, 75601, 75605, 75606, 75620, 75621, 75622, 75623, 75625, 75626, 75627, 75628, 75630, 75631, 75650, 75651, 75652, 75653, 75654, 75655, 75656, 75657, 75658, 75659, 75660, 75661, 75662, 75663, 75665, 75667, 75669, 75671, 75672, 75673, 75676, 75677, 75678, 75680, 75681, 75682, 75685, 75686, 75687, 75690, 75691, 75692, 75695, 75696, 75697, 75705, 75706, 75710, 75711, 75712, 75716, 75717, 75718, 75722, 75723, 75724, 75725, 75726, 75727, 75728, 75731, 75732, 75733, 75734, 75736, 75737, 75738, 75741, 75742, 75743, 75744, 75746, 75747, 75748, 75772, 75773, 75774, 75775, 75790, 75801, 75802, 75803, 75804, 75805, 75806, 75807, 75808, 75810, 75811, 75820, 75821, 75822, 75823, 75825, 75826, 75827, 75828, 75831, 75832, 75833, 75834, 75840, 75841, 75842, 75843, 75845, 75846, 75847, 75850, 75851, 75860, 75861, 75870, 75871, 75872, 75873, 75880, 75881, 75885, 75886, 75887, 75888, 75889, 75890, 75891, 75892, 75893, 75898, 78221, 78240, 78409, 78413

(4) Tests

T1A, Lab Tests - Routine Venipuncture

36415

T1B, Lab Tests - Automated General Profiles

80002, 80003, 80004, 80005, 80006, 80007, 80008, 80009, 80010, 80011, 80012, 80016, 80018, 80019, 80050, 80052, 80053

T1C, Lab Tests - Urinalysis

81000, 81002, 81003, 81004, 81005, 81006, 81007, 81010, 81011, 81012, 81015, 81020, 81025, 81030, 81050, 81099

T1D, Lab Tests - Blood Counts

85005, 85007, 85008, 85009, 85012, 85013, 85014, 85018, 85021, 85022, 85023, 85024, 85025, 85027, 85028, 85029, 85030, 85031, 85041, 85044, 85045, 85048

T1E, Lab Tests - Glucose

82947, 82948, 82949, 82950, 82951, 82952, 82953, 82962

T1F, Lab Tests - Bacterial Cultures

87040, 87045, 87060, 87070, 87072, 87075, 87076, 87081, 87082, 87083, 87084, 87085, 87086, 87087, 87088

T1G - Lab Test, Other (MFS)

P3001(mod=26), Q0092, 80500, 80502, 83020(mod=26), 83912(mod=26), 84165(mod=26), 84190(mod=26), 85390(mod=26), 85576(mod=26), 85577, 86255(mod=26), 86256(mod=26), 86320(mod=26), 86325(mod=26), 86327(mod 86327(mod=26), 86334(mod=26), 86490, 86510, 86540, 86580, 86585, 87164(mod=26), 87207(mod=26), 88151(mod=26), 88180, 88182, 88199, 88299, 88311, 88312, 88313, 88314, 88318, 88319, 88342, 88346, 88347, 88355, 88356, 88358, 88362, 88365, 88399, 89060(mod=26), 89360, 89399, 94710, 99000, 99001

T1H - Lab Test, Other (non MFS)

P2026, P2027, P2028, P2029, P2031, P2032, P2033, P2038, P3000, P3001(mod NE 26), P7001, P7020, P9605, P9610, P9615, 53800, 80031, 80032, 80033, 80034, 80040, 80042, 80055, 80056, 80057, 80058, 80059, 80060, 80061, 80062, 80063, 80064, 80065, 80066, 80067, 80068, 80070, 80071, 80072, 80073, 80075, 80080, 80082, 80084, 80085, 80086, 80088, 80089, 80090, 80091, 80092, 80099, 80100, 80101, 80102, 80103, 80150, 80152, 80154, 80156, 80158, 80160, 80162, 80164, 80166, 80168, 80170, 80172, 80174, 80176, 80178, 80182, 80184, 80185, 80186, 80188, 80190, 80192, 80194, 80196, 80198, 80200, 80202, 80299, 82000, 82003, 82005, 82009, 82010, 82011, 82012, 82013, 82015, 82024, 82030, 82035, 82040, 82042, 82043, 82044, 82055, 82060, 82065, 82070, 82072, 82075, 82076, 82078, 82085, 82086, 82087, 82088, 82089, 82091, 82095, 82096, 82100, 82101, 82103, 82104, 82105, 82106, 82108, 82112, 82115, 82126, 82128, 82130, 82131, 82134, 82135, 82137, 82138, 82140, 82141, 82142, 82143, 82145, 82150, 82155, 82156, 82157, 82159, 82160, 82163, 82164, 82165, 82168, 82170, 82172, 82173, 82175, 82180, 82190, 82205, 82210, 82225, 82230, 82231, 82232, 82235, 82236, 82239, 82240, 82245, 82250, 82251, 82252, 82260, 82265, 82268, 82270, 82273, 82280, 82285, 82286, 82290, 82291, 82300, 82305, 82306, 82307, 82308, 82310, 82315, 82320, 82325, 82330, 82331, 82335, 82340, 82345, 82355, 82360, 82365, 82370, 82372, 82374, 82375, 82376, 82378, 82380, 82382, 82383, 82384, 82387, 82390, 82397, 82400, 82405, 82415, 82418, 8242Z, 82420, 82425, 82435, 82436, 82437, 82438, 82441, 82443, 82465, 82470, 82480, 82482, 82484, 82485, 82486, 82487, 82488, 82489, 82490, 82491, 82495, 82505, 82507, 82512, 82520, 82525, 82526, 82528, 82529, 82530, 82531, 82532, 82533, 82534, 82536, 82537, 82538, 82539, 82540, 82545, 82546, 82550, 82552, 82553, 82554, 82555, 82565, 82570, 82575, 82585, 82595, 82600, 82601, 82606, 82607, 82608, 82614, 82615, 82620, 82624, 82626, 82627, 82628, 82633, 82634, 82635, 82636, 82638, 82639, 82640, 82641, 82643, 82646, 82649, 82651, 82652, 82654, 82656, 82660, 82662, 82664, 82666, 82668, 82670, 82671, 82672, 82673, 82674, 82676, 82677, 82678, 82679, 82690, 82691, 82692, 82693, 82694, 82696, 82705, 82710, 82715, 82720, 82725, 82727, 82728, 82730, 82735, 82740, 82741, 82742, 82745, 82746, 82747, 82750, 82755, 82756, 82757, 82759, 82760, 82763, 82765, 82775, 82776, 82780, 82784, 82785, 82786, 82787, 82790, 82791, 82792, 82793, 82795, 82800, 82801, 82802, 82803, 82804, 82812, 82817, 82820, 82926, 82927, 82928, 82929, 82931, 82932, 82938, 82941, 82942, 82943, 82944, 82946, 82954, 82955, 82960, 82961, 82963, 82965, 82975, 82977, 82978, 82979, 82980, 82985, 82995, 82996, 82997, 82998, 83000, 83001, 83002, 83003, 83004, 83005, 83008, 83010, 83011, 83012, 83015, 83018, 83020(mod NE 26), 83026, 83030, 83033, 83036, 83040, 83045, 83050, 83051, 83052, 83053, 83055, 83060, 83065, 83068, 83069, 83070, 83071, 83086, 83087, 83088, 83093, 83094, 83095, 83150, 83485, 83486, 83491, 83492, 83493, 83494, 83495, 83496, 83497, 83498, 83499, 83500, 83505, 83510, 83518, 83519, 83520, 83523, 83524, 83525, 83526, 83528, 83530, 83540, 83545, 83546, 83550, 83555, 83565, 83570, 83571, 83576, 83578, 83582, 83583, 83584, 83586, 83587, 83588, 83589, 83590, 83593, 83597, 83599, 83600, 83605, 83610, 83615, 83620, 83624, 83625, 83626, 83628, 83629, 83631, 83632, 83633, 83634, 83645, 83650, 83655, 83660, 83661, 83662, 83670, 83675, 83680, 83681, 83685, 83690, 83700, 83705, 83715, 83717, 83718, 83719, 83720, 83721, 83725, 83727, 83728, 83730, 83735, 83740, 83750, 83755, 83760, 83765, 83775, 83785, 83790, 83795, 83799, 83805, 83825, 83830, 83835, 83840, 83842, 83845, 83857, 83858, 83859, 83860, 83861, 83862, 83864, 83865, 83866, 83872, 83873, 83874, 83875, 83880, 83883, 83885, 83887, 83890, 83892, 83894, 83895, 83896, 83898, 83900, 83910, 83912(mod NE 26), 83913, 83915, 83916, 83917, 83918, 83920, 83925, 83930, 83935, 83938, 83945, 83946, 83947, 83948, 83949, 83965, 83970, 83971, 83972, 83973, 83974, 83975, 83985, 83986, 83992, 83995, 84005, 84021, 84022, 84030, 84031, 84033, 84035, 84037, 84038, 84039, 84040, 84045, 84060, 84061, 84065, 84066, 84075, 84078, 84080, 84081, 84082, 84083, 84085, 84087, 84090, 84100, 84105, 84106, 84110, 84118, 84119, 84120, 84121, 84126, 84127, 84128, 84132, 84133, 84134, 84135, 84136, 84138, 84139, 84141, 84142, 84144, 84146, 84147, 84149, 84150, 84153, 84155, 84160, 84165(mod NE 26), 84170, 84175, 84176, 84180, 84181, 84182, 84185, 84190(mod NE 26), 84195, 84200, 84201, 84202, 84203, 84205, 84206, 84207, 84208, 84210, 84220, 84228, 84230, 84231, 84232, 84233, 84234, 84235, 84236, 84238, 84244, 84246, 84252, 84255, 84260, 84270, 84275, 84285, 84295, 84300, 84305, 84307, 84310, 84311, 84315, 84317, 84318, 84324, 84375, 84392, 84395, 84401, 84402, 84403, 84405, 84406, 84407, 84408, 84409, 84410, 84420, 84425, 84430, 84432, 84434, 84435, 84436, 84437, 84439, 84442, 84443, 84444, 84445, 84446, 84447, 84448, 84450, 84455, 84460, 84465, 84466, 84472, 84474, 84476, 84478, 84479, 84480, 84481, 84482, 84483, 84485, 84488, 84490, 84510, 84520, 84525, 84540, 84545, 84550, 84555, 84560, 84565, 84570, 84575, 84577, 84578, 84580, 84583, 84584, 84585, 84588, 84589, 84590, 84595, 84597, 84600, 84605, 84610, 84613, 84615, 84620, 84630, 84635, 84645, 84681, 84695, 84701, 84702, 84703, 84800, 84810, 84830, 84999, 85000, 85002, 85130, 85150, 85160, 85165, 85170, 85171, 85172, 85175, 85210, 85220, 85230, 85240, 85242, 85244, 85245, 85246, 85247, 85250, 85260, 85270, 85280, 85290, 85291, 85292, 85293, 85300, 85301, 85302, 85303, 85305, 85306, 85310, 85311, 85320, 85330, 85335, 85337, 85340, 85341, 85345, 85347, 85348, 85360, 85362, 85363, 85364, 85365, 85366, 85367, 85368, 85369, 85370, 85371, 85372, 85376, 85377, 85378, 85379, 85384, 85385, 85390(mod NE 26), 85392, 85395, 85396, 85398, 85400, 85410, 85415, 85420, 85421, 85426, 85441, 85445, 85460, 85475, 85520, 85525, 85530, 85535, 85538, 85540, 85544, 85547, 85548, 85549, 85555, 85556, 85557, 85560, 85575, 85576(mod NE 26), 85577, 85580, 85585, 85590, 85595, 85597, 85610, 85611, 85612, 85613, 85614, 85615, 85618, 85630, 85632, 85635, 85650, 85651, 85660, 85665, 85670, 85675, 85700, 85705, 85710, 85711, 85720, 85730, 85732, 85810, 85820, 85999, 86000, 86002, 86004, 86006, 86007, 86008, 86009, 86011, 86012, 86013, 86014, 86016, 86017, 86018, 86019, 86021, 86022, 86023, 86024, 86026, 86028, 86031, 86032, 86033, 86034, 86035, 86038, 86039, 86045, 86060, 86063, 86064, 86066, 86067, 86068, 86069, 86070, 86072, 86073, 86074, 86075, 86076, 86080, 86082, 86083, 86084, 86085, 86090, 86095, 86096, 86100, 86105, 86115, 86120, 86140, 86147, 86149, 86151, 86155, 86156, 86157, 86158, 86159, 86160, 86161, 86162, 86163, 86164, 86171, 86185, 86209, 86215, 86225, 86226, 86227, 86228, 86229, 86235, 86243, 86244, 86255(mod NE 26), 86256(mod NE 26), 86265, 86266, 86267, 86277, 86280, 86281, 86282,

T1H - Lab Test, Other (non MFS) (cont)

86283, 86285, 86286, 86287, 86288, 86289, 86290, 86291, 86293, 86295, 86296, 86298, 86299, 86300, 86302, 86305, 86306, 86308, 86309, 86310, 86311, 86312, 86314, 86316, 86317, 86318, 86319, 86320(mod NE 26), 86325(mod NE 26), 86327(mod NE 26), 86329, 86331, 86332, 86333, 86334(mod NE 26), 86335, 86337, 86338, 86340, 86343, 86344, 86349, 86353, 86357, 86358, 86376, 86377, 86378, 86382, 86384, 86385, 86386, 86402, 86403, 86405, 86410, 86411, 86412, 86415, 86417, 86418, 86419, 86420, 86421, 86422, 86423, 86425, 86430, 86431, 86455, 86485, 86565, 86586, 86587, 86588, 86590, 86592, 86593, 86594, 86595, 86600, 86602, 86603, 86606, 86609, 86612, 86615, 86618, 86619, 86622, 86625, 86628, 86630, 86631, 86632, 86635, 86638, 86641, 86644, 86645, 86648, 86650, 86651, 86652, 86653, 86654, 86658, 86660, 86662, 86663, 86664, 86665, 86668, 86671, 86674, 86677, 86681, 86682, 86684, 86685, 86687, 86688, 86689, 86692, 86694, 86695, 86698, 86701, 86702, 86703, 86710, 86713, 86717, 86720, 86723, 86727, 86729, 86732, 86735, 86738, 86741, 86744, 86747, 86750, 86753, 86756, 86759, 86762, 86765, 86768, 86771, 86774, 86777, 86778, 86781, 86784, 86787, 86790, 86793, 86800, 86805, 86806, 86807, 86808, 86810, 86812, 86813, 86816, 86817, 86821, 86822, 86849, 86850, 86860, 86870, 86880, 86886, 86890, 86891, 86900, 86901, 86903, 86904, 86905, 86906, 86910, 86915, 86920, 86921, 86922, 86927, 86930, 86931, 86932, 86940, 86941, 86945, 86950, 86965, 86970,86971, 86972, 86975, 86976, 86977, 86978, 86985, 86999, 87001, 87003, 87015, 87101, 87102, 87103, 87106, 87109, 87110, 87116, 87117, 87118, 87140, 87143, 87145, 87147, 87151, 87155, 87158, 87163, 87164(mod NE 26), 87166, 87173, 87174, 87175, 87176, 87177, 87178, 87179, 87181, 87184, 87186, 87187, 87188, 87190, 87192, 87197, 87205, 87206, 87207(mod NE 26), 87208, 87210, 87211, 87220, 87230, 87250, 87252, 87253, 87999, 88099, 88151(mod NE 26), 88156, 88174, 88230, 88233, 88235, 88237, 88239, 88245, 88248, 88250, 88260, 88261, 88262, 88263, 88265, 88267, 88268, 88269, 88270, 88280, 88283, 88285, 88289, 88316, 88317, 88345, 88370, 88371, 88372, 89005, 89050, 89051, 89060(mod NE 26), 89070, 89125, 89160, 89180, 89190, 89205, 89300, 89310, 89320, 89323, 89325, 89329, 89330, 89355, 89365

T2A, Other Tests - Electrocardiograms

93000, 93005, 93010, 93012, 93014, 93040, 93041, 93042, 93045

T2B, Other Tests - Cardiovascular Stress Tests

93015, 93017, 93018, 93350

T2C, Other Tests - EKG Monitoring

Q0019, Q0020, Q0021, Q0022, Q0023, Q0024, Q0025, Q0026, Q0027, Q0028, Q0029, Q0030, Q0031, Q0032, 93224, 93225, 93226, 93227, 93230, 93231, 93232, 93233, 93235, 93236, 93237, 93258, 93259, 93262, 93263, 93266, 93268, 93269, 93270, 93271, 93272, 93273, 93274, 93275, 93276, 93277, 93278

T2D, Other Tests - Other

M0520, M0525, M0526, M0530, M0535, M0540, M0560, M0575, M0580, M0585, M0592, Q0035, 54240, 63690, 63691, 74275, 76900, 76910, 88349, 89130, 89132, 89135, 89136, 89140, 89141, 90778, 91010, 91011, 91012, 91020, 91030, 91032, 91033, 91052, 91065, 91090, 91122, 91299, 92265, 92270, 92280, 92499, 92512, 92516, 92520, 92541, 92542, 92543, 92544, 92545, 92546, 92547, 92551, 92552, 92553, 92555, 92556, 92557, 92559, 92560, 92561, 92562, 92563, 92564, 92565, 92566, 92567, 92568, 92569, 92571, 92572, 92573, 92574, 92575, 92576, 92577, 92578, 92580, 92581, 92582, 92583, 92584, 92585, 92589, 92590, 92591, 92592, 92593, 92594, 92595, 92596, 92599, 93024, 93201, 93202, 93204, 93205, 93208, 93209, 93210, 93220, 93221, 93222, 93240, 93255, 93640, 93700, 93720, 93721, 93722, 93725, 93728, 93731, 93732, 93733, 93734, 93735, 93736, 93737, 93738, 93740, 93760, 93762, 93770, 93780, 93781, 93784, 93786, 93788, 93790, 93791, 93792, 93793, 93794, 93795, 93796, 93799, 93850, 93860, 93875, 93886, 93888, 93890, 93910, 93920, 93921, 93950, 93960, 93965, 94010, 94060, 94070, 94150, 94160, 94200, 94240, 94250, 94260, 94350, 94360, 94370, 94375, 94400, 94450, 94620, 94680, 94681, 94690, 94700, 94705, 94715, 94720, 94725, 94750, 94760, 94761, 94762, 94770, 94772, 94799, 95000, 95001, 95002, 95003, 95004, 95005, 95006, 95007, 95010.

T2D, Other Tests - Other

95011, 95014, 95015, 95016, 95017, 95018, 95020, 95021, 95022, 95023, 95024, 95027, 95028, 95030, 95031, 95032, 95033, 95034, 95040, 95041, 95042, 95043, 95050, 95051, 95056, 95060, 95065, 95070, 95071, 95075, 95077, 95078, 95080, 95081, 95082, 95199, 95805, 95816, 95817, 95819, 95821, 95822, 95823, 95824, 95826, 95827, 95828, 95842, 95858, 95900, 95904, 95925, 95933, 95935, 95937, 95950, 95951, 95952, 95999

(5) Durable Medical Equipment

D1A, Med/Surg Supplies

A4190 - A9300

D1B, Hospital Beds

E0250 - E0330

D1C, Oxygen and Supplies

Q0036, Q0037, Q0038, Q0039, Q0040, Q0041, Q0042, Q0043, Q0044, Q0045, Q0046
E0400 - E0480, E1351 - E1406

D1D, Wheelchairs

E0950 - E1299

D1E, Other DME

Q0079, Q0080, Q0081
E0010-E0249, E0500-E0750, E0840-E0948, E1300-E1350, E1510-E1702, Q0079-Q0081

D1F, Orthotic Devices

L0100 - L9999

(6) Other

O1A, Ambulance

A0010 - A0999

O1B, Chiropractic

A2000-A2999

O1C, Enteral and Parenteral

B4000 - B9999, E0776 - E0791

O1D, Chemotherapy

Q0083, Q0084
J9000 - J9999, Q0083-Q0084

O1E, Other Drugs

Q9920, Q9921, Q9922, Q9923, Q9924, Q9925, Q9926, Q9927, Q9928, Q9929, Q9930, Q9931, Q9932, Q9933, Q9934, Q9935, Q9936, Q9937, Q9938, Q9939, Q9940
J0110 - J8999, Q9920-Q9940

O1F, Vision, Hearing and Speech Services

V0000 - V9999, Q0093

(7) Exceptions/Unclassified

Y1 , Other - Medicare Fee Schedule

23929, 26989, 29909, 69949, 92392, 92393, 92395, 92396, 96549, 99002, 99024, 99050, 99052, 99054, 99056, 99070, 99071, 99078, 99080, 99082, 99090, 99199, 99371, 99372, 99373
H0000-H9999
D0000-D9999

Y2 , Other - Non Medicare Fee Schedule

M0009, M0019, M0071, M0075, M0076, M0300, M0799, P9005, P9007, P9010, P9011, P9012, P9013, P9014, P9015, P9016, P9017, P9018, P9019, P9020, P9021, P9022, P9023, P9024, P9603, P9604, Q0034, Q0060, Q0061, 90699, 92390, 92391, 98920, 98921, 98922, 99075

Z1, Local Codes

All W, X, Y, and Z

Z2 , Undefined codes.

M0020, M0299, M0700, M9999, P2000, P7000, P9000, P9006, QQ001, QQ002, QQ003, QQ004, QQ005, Q0047, Q0057, Q0082, Q0086, R0009, R0059, R0076, R0085, R0109, R0129, R0159, R0209, R0259, R0309, R0359, R0599, 22500, 36020, 49910, 62286, 70002, 90898, 99013, 99014, 99015, 99499, 99999

Appendix B
Health Resource Profile Code Definitions

Metropolitan Counties	
Large Metropolitan:	
Core Counties	Core counties of metropolitan areas of 1,000,000 or more population
Fringe Counties	Noncore counties of metropolitan areas of 1,000,000 or more population
Medium Metropolitan	Counties of metropolitan areas of 250,000 to 999,999 population
Lesser Metropolitan	Counties of metropolitan areas of 50,000 to 249,999 population
Non Metropolitan Counties	
Urbanized:	
Adjacent to MSA	Counties contiguous to MSA with 20,000 or more urban residents
Not Adjacent to MSA	Counties not contiguous to MSA with 20,000 or more urban residents
Less Urbanized:	
Adjacent to MSA	Counties contiguous to MSA with less than 20,000 but greater or equal to 2,500 urban residents
Not Adjacent to MSA	Counties not contiguous to MSA with less than 20,000 but greater or equal to 2,500 urban residents
Thinly Populated:	
Adjacent to MSA	Counties contiguous to MSA with no urban residents
Not Adjacent to MSA	Counties not contiguous to MSA with no urban residents

** Note:

1) Non-adjacent = Non contiguous counties and contiguous counties having less than 1 percent of labor force commuting to the MSA.

2) Urban = Place or township, incorporated or unincorporated, of 2,500 or more population.

Appendix C

PPR Payment Impacts, Ordered by State Impact
(Fed Reg Vol 56(227) Nov 25, 1991 page 59619)

State	Percent Change in Allowed Charges for Fee Schedule Relative to CPR: Payments per Service: 1996Ex Ante Impact	
United States	-6	
Mississippi	12	Increase
Iowa	9	Increase
Colorado	9	Increase
Wyoming	8	Increase
Minnesota	7	Increase
New Hampshire	6	Increase
Utah	5	Increase
Idaho	6	Increase
South Carolina	4	Increase
Michigan	4	Increase
Virginia	4	Increase
Vermont	2	No Change
Missouri	1	No Change
Nebraska	1	No Change
Rhode Island	1	No Change
Maine	1	No Change
Kentucky	0	No Change
South Dakota	0	No Change
Washington	-1	No Change
Wisconsin	-1	No Change
Montana	-2	No Change
North Carolina	-2	No Change
Tennessee	-2	No Change
Oregon	-2	No Change
Indiana	-2	No Change
Oklahoma	-3	No Change
Massachusetts	-3	No Change

PPR Payment Impacts, Ordered by State Impact
(Fed Reg Vol 56(227) Nov 25, 1991 page 59619)

State	Percent Change in Allowed Charges for Fee Schedule Relative to CPR: Payments per Service: 1996	Ex Ante Impact
United States	-6	
Pennsylvania	-4	Moderate Decrease
New Jersey	-4	Moderate Decrease
Kansas	-4	Moderate Decrease
Delaware	-4	Moderate Decrease
Illinois	-5	Moderate Decrease
North Dakota	-5	Moderate Decrease
Georgia	-6	Moderate Decrease
Alabama	-6	Moderate Decrease
Arkansas	-7	Moderate Decrease
West Virginia	-7	Moderate Decrease
Lousiana	-7	Moderate Decrease
District of Col.	-7	Moderate Decrease
Ohio	-7	Moderate Decrease
Connecticut	-8	Moderate Decrease
New York	-8	Moderate Decrease
New Mexico	-9	Moderate Decrease
Maryland	-10	Large Decrease
Texas	-11	Large Decrease
Arizona	-13	Large Decrease
California	-14	Large Decrease
Hawaii	-16	Large Decrease
Florida	-17	Large Decrease
Alaska	-19	Large Decrease
Nevada	-20	Large Decrease

APPENDIX D

LIST OF PROCEDURES

CATEGORY	CODE RANGE	NOTES
* 1. Cardiac Catheterization	37.21-37.23	
2. Percutaneous Transluminal Coronary Angioplasty	36.0	until 10/1/86
	36.01,36.02	as of 10/1/86
	36.05	as of 10/1/87
* 3. Coronary Artery Bypass Graft	106, 107	DRGs
* 4. Permanent Cardiac Pacemaker Implantation	37.70	until 9/30/87
	37.73-37.77	until 9/30/87
	37.85	until 9/30/87
	37.80-37.83	as of 10/1/87
	37.85-37.87	as of 10/1/87
* 5. Carotid Endarterectomy	38.12	
6. Reduction of Fracture of the Femur	79.05	
	79.15	
	79.25	
	79.35	
* 7. Other Arthroplasty of the Hip	81.6-81.69	until 10/1/89
	81.52	as of 10/1/89
* 8. Total Hip Replacement	81.5-81.59	until 10/1/89
	81.51	as of 10/1/89
* 9. Total Knee Replacement	81.41	until 10/1/89
	81.54	as of 10/1/89
*10. Laminectomy	03.09	

* Overpriced procedures already subject to reduction in payments prior to the 1992 payment reform

LIST OF PROCEDURES (Continued)

CATEGORY	**CODE RANGE**	**NOTES**
*11. Excision of Disk	80.5-80.59	
*12. Spinal Fusion	81.0-81.09	
*13. Partial Excision of the Large Bowel	45.7-45.79 45.93 45.94	
*14. Cholecystectomy	51.21-51.22	
*15. Repair of Inguinal Hernia	53.0-53.17	
*16. Prostatectomy	60.2-60.6	
*17. Hysterectomy	68.4-68.7	
*18. Mastectomy	85.41-85.48 85.20 85.22-85.23	
*19. Appendectomy	47.0	
20. Incidental Appendectomy	47.1	

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* Overpriced procedures already subject to reduction in payments prior to the 1992 payment reform

APPENDIX E

ANALYTIC APPROACH

DEFINING ACCESS

Potential access is described by factors that influence the demand for and supply of health care services. The behavioral model of health service use posits that there are three factors that affect utilization: predisposing, enabling and need characteristics (Andersen, 1968; Andersen and Newman. 1973; Andersen, Kravitz, and Anderson, 1975). Need characteristics include both the individual's perception of the severity of the illness as well as the clinical evaluation of the individual's condition. Predisposing factors include such characteristics as age, gender, education, occupation, and race/ethnicity. Although individuals might need medical care or be predisposed to using health care services, they must possess the economic means to do so. On the demand side, enabling patient factors describe the economic means which facilitate access, such as income, insurance coverage, and net price to the patient (the latter includes both monetary and time costs). On the supply side, enabling community factors reflect the availability of services in the community which are a function of the prices paid to the provider, among other factors.

Realized access describes the point at which demand and supply intersect, and can be measured by both the utilization patterns of patients and their satisfaction with the care received. The relative importance of each of these variables tends to be related to the amount of discretion available to the individual (Andersen, 1968; Andersen and Newman, 1973). Need is the most important determinant where there is the least amount of discretion, for example, acute hospitalization. Where there is more discretion, as in the use of preventive health services, predisposing and enabling factors historically have been more important in determining who uses services and how much is used (Berki and Ashcraft, 1979).

In considering the access impacts of the Medicare Fee Schedule, it is important to move beyond the level of realized access or indicators of potential access. A third dimension is the equitability of access. Equitable access has been defined as the allocation of services on the basis of need, while inequitable access occurs when services are distributed according to such demographic characteristics as race, family income, or place of residence, as opposed to need (Andersen and Aday, 1983). In addition, equitability of access takes into account the burden involved in obtaining care -- indicators of potential access -- including the direct money costs associated with the care, as well as such indirect costs as waiting and travel time, and availability of transportation.

DEFINING VULNERABLE POPULATIONS

Equitability of access is a particular concern for certain population subgroups that may be disproportionately affected by changes in the payment system. For example, Medicare beneficiaries with limited ability to pay include those without Medi-gap coverage, dual Medicaid and Medicare eligibles, and other low-income enrollees. Berk and Wilensky (1984) found that supplemental insurance coverage has a major impact on utilization, with the elderly poor receiving two visits less per year than those with Medi-gap coverage. Populations with complex health care needs may also be vulnerable to access barriers. For Medicare beneficiaries, this would include people with mental or physical disabilities, the institutionalized, and the very old.

Beneficiaries of different ethnic groups may face sociocultural barriers to access. Zuvekas et al. (1986) found that non-whites were less likely to see one particular physician for care, and were more likely than whites to be patients in clinics, hospital outpatient departments, and emergency rooms rather than doctors' offices. Similarly, Estrada et al. (1990) found that approximately one-third of the adult Mexican American population reported barriers to obtaining health care during their most recent medical encounter.

This analysis gives particular focus to the following potentially vulnerable populations:

the disabled, oldest old, and those with poor health status.

black, Hispanic, and other minority enrollees.

low-income enrollees.

those with no supplemental insurance coverage.

those in areas with high Medicare fee reductions.

APPENDIX F

METHODOLOGY FOR CONSTRUCTING ANALYTIC VARIABLES

This appendix describes the methods used to define the variables for this analysis. The first section describes the dependent and independent variables based on the Medicare Current Beneficiary Survey (MCBS). The second section describes the methods used to develop utilization indicators for MCBS respondents based on the National Claims History File. The final section describes the variables obtained from other data sources.

MEDICARE CURRENT BENEFICIARY SURVEY

Dependent Variables

The presence and type of regular source of care is an indicator of "potential access." Type of regular source was constructed by identifying (1) whether or not the individual had a regular source, (2) if so, whether the regular source was a physician's office or other place, and (3) if another place, whether or not the respondent had a regular physician. The four resulting categories were: physician's office, other place with a regular physician, other place without a regular physician, no regular source.

Measures of realized access, representing utilization outcomes, include dichotomous indicators of any visit in the previous year (regardless of setting), an ambulatory (non-hospital-based) visit, outpatient department visit. or emergency room visit in the previous year. In addition, visits are differentiated according to whether they were "walk-in" versus an appointment or physician referral. For emergency room visits, a further distinction includes whether the visit resulted in an inpatient admission. Four types of preventive use are tracked: flu shot, pneumonia shot, and for women, mammogram and Pap smear.

The extent of reported barriers to care is another measure of "realized access." Respondents were asked whether they had ever had a health problem and not received care. The indicator of barriers excludes those who said the reason they did not receive care is that the problem was not serious. For those experiencing a barrier, the reason is classified as financial or other factor, based on Westat's coding of the open-ended verbatim responses. Financial barriers include "cost too much," "didn't have time," "charge more than Medicare will pay," and "doctor does not accept Medicaid." Other factors include "could not get appointment," "doctor not available," "no way to get to doctor," "could not leave family," "doctor could not do much," "fear of what's wrong," and "other reason" (as coded by Westat).

Finally, satisfaction with care is measured along four dimensions: cost, availability, ease/convenience, and quality. In addition, attitudes toward the usual source of care are quantified.

Independent Variables

Predisposing factors include age, gender, race/ethnicity, living arrangement, whether the beneficiary has living children, and educational attainment. Age is disaggregated into seven categories for the descriptive analysis, corresponding with the seven age cells used for sampling. The multivariate analysis includes age in 1991 (measured as a continuous variable) and a quadratic age term to capture hypothesized nonlinearities in utilization. Race/ethnicity is classified in four categories: white (not Hispanic), black (not Hispanic), Hispanic, and other. Educational status is measured as less than six years, 6-11 years, 12 years (high school graduate), and more than 12 years. For the multivariate analysis the first two categories are combined (less than 12 years). Two measures of social support are included: living arrangement (with spouse, with others, and alone), as well as presence of living children.

Enabling factors include income and supplemental insurance. Income is measured as total household income and is represented as a categorical (rather than continuous) variable. The out-of-pocket price of care is reflected by a series of dummy variables for the presence of supplemental insurance coverage, including Medicare and Medicaid (dual enrollees), Medicare and private supplemental coverage, and Medicare and other coverage (including other public programs or combinations of public and private supplemental benefits). The reference category is Medicare coverage with no supplemental insurance coverage.

Numerous studies have found that having a regular source of care is associated with higher use of physicians' services, especially preventive services (Andersen and Aday, 1976; Salkever, 1976; Wan and Gray, 1978). Those with no regular source may face greater information and search costs than those with any type of regular source. In addition, the type of regular source may be associated with a variety of organizational barriers or incentives. A distinction is made between a physician's office as the regular source and other places (with and without a regular physician). The omitted category for the multivariate analysis is no regular source.

Enabling factors on the supply side are represented by two indicators: the availability of nonfederal, active, patient care physicians per capita in the county of residence; and the anticipated level of Medicare fee changes in 1992 measured at the MSA/State rural level. The level of the payment change provides an indication of the relative generosity of Medicare fees pre-Medicare Fee Schedule (MFS); that is, areas expecting increases have been paid relatively less generously than those expecting reductions. Significant coefficients on this variable would indicate baseline differences in utilization, access, or satisfaction according to the expected level of the payment change.

Two measures of health status are used. The first is perceived health status, self-reported by the respondent on a five-point scale (excellent, very good, good, fair, poor). The second is the level of dependency, based on the instrumental activities of daily living (IADLs) and activities of daily living (ADLs). A five-point scale indicates whether the individual is dependent in IADLs only, in 1-2 ADLs, 3-4 ADLs, 5-6 ADLs, or has no dependency at all. The level of dependency was constructed based on indicators of whether the individual had difficulty with five IADL activities (preparing meals, shopping, managing money, using the telephone, and/or doing light housework) and six ADL activities (bathing, dressing, using the toilet, transferring, eating, and walking).

NATIONAL CLAIMS HISTORY FILE

Baseline indicators of inpatient and outpatient utilization were also derived from the Medicare claims for non-institutionalized individuals in the Medicare Current Beneficiary Survey . All of the indicators were constructed using 1991 National Claims History (NCH) data linked to individuals in the MCBS. These indicators will be trended over time to assess the impact of the MFS on utilization of these services by individual characteristics. The indicators are:

Office visits and consultation by provider specialty
Visits to hospital emergency rooms
Visits to hospital outpatient departments
Inpatient admissions
Admissions for ambulatory care sensitive (ACS) conditions

Individuals who died during 1991 or who were enrolled in Health Maintenance Organizations were excluded from the analysis. Individuals with only Part A Medicare coverage were excluded from calculations of office visit, outpatient department visit, and emergency room visit rates, and individuals with only Part B Medicare coverage were excluded from the calculations of inpatient admission rates.

The following sections provide further justification for these measures and the methodology for constructing them.

Office Visits and Consultations by Specialty

The MFS increases Medicare payment rates for office visits relative to other procedures. It also affects certain specialties more than others. The fully implemented MFS is predicted to result in the greatest increases in payment per service for three physician specialties: Family Practice, General Practice, and Internal Medicine. Several limited-licensed practitioners, such as Optometry, Chiropractic services, and Podiatry, are also likely to benefit substantially from the MFS. The MFS is likely to induce varying supply responses across specialties. Since the price of office visits relative to other procedures has risen, all specialties should substitute office visits for other procedures. On the other hand, for those specialties in which overall Medicare reimbursement will fall (i.e., the non-primary care physician specialties), providers may treat fewer Medicare beneficiaries. Depending on the magnitude of these effects, the average number of office visits by Medicare beneficiaries to non-primary care physicians may fall.

The NCH 1991 Physician/Supplier file was used to count office visits and consultations by specialty. The number of services with CPT-4 procedure codes 90000-90080 and 90600-90643, and office as the place of service, were aggregated for each individual by specialty. Visits to three categories of physician specialty were identified: primary care (family practice, general medicine, internal medicine, and osteopathy), medical specialties (allergy, cardiology, dermatology, gastroenterology, pulmonary disease, geriatric medicine, nephrology, infectious disease, endocrinology, rheumatology, hematology/oncology), and other. Office visits/consultations to non-physician specialties were counted separately.

The correspondence between self-reported visit to a physician and a claim with a visit code is 86 percent, with slightly more people (9 percent) saying they visited a physician but with no claim indicating a visit, and 5 percent saying they did not visit a physician but having a claim indicating that they did. Some of the difference may be a function of respondent recall, particularly in the latter case. However, in the first instance, a physician may have billed for a service other than a visit, while the respondent reported it as a visit in the survey.

Visits to Hospital Emergency Rooms and Outpatient Departments

Increased use of hospital outpatient departments, particularly at public hospitals, and emergency rooms for routine care may be an indication that beneficiaries are unable to obtain adequate care through regular sources. Unfortunately, it is not possible to determine the appropriateness of emergency room or outpatient department visits. However changes over time in the use of outpatient departments or emergency rooms, ceteris paribus, may indicate a change in access to physician services as a result of the MFS.

Outpatient records were used to identify outpatient department visits. An outpatient claim with a Revenue Center code equal to 510 (outpatient department) or 519 (other clinic) was considered an outpatient visit. Only one claim per day was counted. This method of counting hospital outpatient department visits does not include visits for many types of services such as laboratory, radiology, or pharmacy. However, since the goal of this analysis is to determine the extent to which hospital outpatient departments are used as a substitute for office visits it was felt that including other revenue centers would be misleading. An alternative method of counting outpatient department visits would be to use the Physician/Supplier file and count the number of services with CPT-4 procedure codes equal to visit/consultation (see above) and place of service equal to outpatient department. However, it was felt that this second method would seriously undercount use of hospital outpatient departments since many physician services (e.g., those provided by hospital staff) would not be billed separately. This method identified

55 percent more visits than the alternative using the physician supplier file. Nonetheless, the claims data produce much lower rates of outpatient department use than self-reported data. The correspondence between OPD claims and self-reported OPD visits was 74 percent. Twenty-four percent of people said that they visited an outpatient department but had no outpatient department claim. Two percent said that they did not visit an outpatient department but had a claim for such a visit. The fact that self-reported use of outpatient departments is higher than indicated by claims may be the result of individuals receiving other services (i.e., radiology, laboratory) at hospital outpatient departments. Use of hospital outpatient departments cannot be analyzed by ownership type since the NCH claims data included with the MCBS file exclude the hospital provider number.

Emergency room visits were also counted from NCH Outpatient records. Any claim with a revenue center code equal to 459 (emergency room) or any Outpatient claim with CPT-4 procedure codes 90500-90580 (emergency room visit) was considered an emergency room visit. Only one visit per day was counted. Physician/supplier records were not used to identify emergency room visits for the same reasons discussed with regard to outpatient department visits. The correspondence between self-reported use of the emergency room and claims is 85 percent. Eleven percent of the sample said they had an emergency room visit since the reference date but had no claim, and 6 percent of the sample said they had no emergency room visit but did have a claim.

Hospital Admissions and Ambulatory Care Sensitive Condition Admissions

Avoidable hospitalizations are those hospital admissions that would not have occurred if patients had received adequate ambulatory care. Billings et al. (1992) have identified Ambulatory Care Sensitive (ACS) conditions, which if adequately treated on an outpatient basis should not lead to complications requiring hospitalization. The definition of ACS conditions was adapted to the elderly population for the purpose of this analysis. The following conditions were included: angina, without surgical procedure; bacterial pneumonia, without mention of sickle cell disease; cellulitis (without major surgical procedure); skin graft with cellulitis; chronic obstructive pulmonary disease (including chronic, bronchitis, emphysema, asthma, bronchiatasis, chronic airway, obstruction not classified elsewhere); congestive heart failure; diabetes; hypertension; hypoglycemia; kidney/urinary tract infection; tuberculosis, without mention of HIV infection.

Using NCH inpatient hospital and skilled nursing facility records for the MCBS population, all admissions to acute care hospitals were identified. All records with adjacent start and end dates were considered one inpatient admission. Thus, transfers between hospitals were considered part of the same admission. An admission was counted as an ACS admission if the primary diagnosis on the first claim of a sequence of consecutive inpatient stays has an ACS diagnosis. However, transfer cases from nursing homes or other institutions were excluded from the count of ACS admissions since these conditions may not reflect lack of ambulatory care.

OTHER DATA SOURCES

Variables were also merged from two external files. The Area Resource File contains county-level data on the number of nonfederal, active, patient care physicians for 1990, based on the American Medical Association's Physician Masterfile as well as 1990 Census data on the size of the population. These data were used to create a county-level physician-population ratio.

The Health Care Financing Administration provided data on the size of the MFS reduction in 1992 and 1996. The variable used in this analysis reflects the anticipated level of the payment reduction in 1992. The reductions are calculated for metropolitan statistical areas and State rural areas.

APPENDIX G

(1) For the descriptive data, all estimates in this report have relative standard errors (the standard error divided by the estimate) of 15 percent or less. These relative standard errors were calculated using the SUDAAN software package; this software package accounts for the complex sampling design of the NHIS in deriving the relative standard errors. Because the sampling method used in 1984 was different than later years, the relative standard errors for the percent of acute conditions medically attended in 1984 could not be computed using this software package. Unless otherwise noted, the differences discussed in the text are significant at the .05 level using the Z test.

(2) This two-part model is appropriate when a large proportion of the observations have a zero value for the dependent variable (Spillman, 1992). This is the case when examining physician visits since, on average, about 28 percent of persons 18-64 and 16 percent of persons 65 and over do not have a physician visit in a year. In the first part of the model, the probability of use of physician services is examined using a logistic regression. The second part models the level of service use among users (i.e. persons with at least one visit) with an ordinary least squares (OLS) regression. To reduce the skewness in the second part of the model, the dependent variable, number of physician visits in a year, was

transformed using the natural log.

For both of the age groups, separate equations were estimated for each of the years (yielding three logistic equations and three OLS equations for each of the age groups, for a total of 12 equations). The independent variables include insurance status, the ratio of the respondent's family income to the poverty level for that family, educational level of the respondent, self-reported health status, activity limitation, presence or absence of a chronic condition, geographic residence of the respondent, age group, and race. Persons with an unknown value for insurance, health status, or educational level were deleted from the multivariate analysis; persons with more than 52 visits per year were also deleted from the multivariate analysis.

(3) The test statistic for evaluating the stability of the logistic regression coefficients over time is a likelihood ratio test. For example, to conduct a pair-wise comparison of 1984 and 1986, the logistic regression for 1986 is estimated twice--once without any restrictions on the coefficients in the model and a second time with the coefficient of the variable of interest restricted to the value that it had in the 1984 model. The likelihood ratio test statistic is then computed. The test statistic has a chi-square distribution with 1 degree of freedom (the number of restricted parameters in the equation). If the test statistic for the pair-wise

comparison between 1984 and 1986 is significant, then the coefficient is not stable between these two years. This suggests a change between these two years.

The test statistic for evaluating the stability of the OLS regression coefficients over time is a t-statistic. In using this test, the assumption is that the coefficient of interest is a constant equal to its value in an earlier model (year). The t-statistic is calculated by dividing the difference between the two coefficients by the standard error of the coefficients from the most recent model. The degrees of freedom in this test are equal to the number of observations in the most recent model minus the number of parameters in the model (including the constant).

(4) The actual coefficients for the income to poverty ratio, fair health status and Medicare and other insurance increased from 1984 to 1986 and then declined between 1986 and 1989. This indicates that despite the significant differences for the pair-wise comparisons 1984-1986 and 1986-1989 no particular time trend was identified. In non-central city MSAs, however, the odds of an elderly person having a visit progressively decreased with the overall difference between 1984 and 1989 being statistically significant. The year to year decline in the actual coefficients was not large enough to make the test statistic for the pair-wise comparisons significant.

(5) For blacks 18-64 years of age, the actual coefficient for the risk of having a visit was only significant in 1986; no particular time trend was identified by race.

(6) The actual coefficient for MSA central cities, though not significant in 1984 and 1986, progressively increased over the three years becoming highly significant in 1989. This explains why the test statistic for the pair-wise comparison 1984-1989 is so large (20.7). While the difference between 1984 and 1989 in non-central city MSAs is statistically significant (5.22), since the actual coefficient increased between 1984 and 1986 and then decreased between 1986 and 1989, there is no particular time trend.

(7) Since the coefficients corresponding to the income to poverty ratio for 1984 and 1986 are so similar, the pair-wise comparison 1984-1986 is not significant. However, since the coefficient significantly declined in 1989, the pair-wise comparisons 1986-1989 and 1984-1989 are significant.

(8) The differences, that is the pair-wise comparisons, between 1984 and 1986, and 1986 and 1989 for these two variables were not significant. By 1989, however, the decline in the coefficients was large enough to make the difference (i.e. the test statistic) between 1984 and 1989 significant. The decline in the number of

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